

Health Services Utilization in the U.S. Population by Health Insurance Coverage

Series B, Descriptive Report No. 13

REPORTS

RA

410

.53

N282

Series B, no.

13 (1986)

Health Care Financing
Administration
Office of Research,
Demonstrations,
and Statistics



Public Health Service
Office of Health Research,
Statistics, and Technology
National Center for
Health Statistics

National Medical Care Utilization and Expenditure Survey

The National Medical Care Utilization and Expenditure Survey (NMCUES) is a unique source of detailed national estimates on the utilization of and expenditures for various types of medical care. NMCUES is designed to be directly responsive to the continuing need for statistical information on health care expenditures associated with health services utilization for the entire U.S. population.

NMCUES will produce comparable estimates over time for evaluation of the impact of legislation and programs on health status, costs, utilization, and illness-related behavior in the medical care delivery system. In addition to national estimates for the civilian noninstitutionalized population, it will also provide separate estimates for the Medicaid-eligible populations in four States.

The first cycle of NMCUES, which covers calendar year 1980, was designed and conducted as a collaborative effort between the National Center for Health Statistics, Public Health Service, and the Office of Research and Demonstrations, Health Care Financing Administration. Data were obtained from three survey components. The first was a national household survey, and the second was a survey of Medicaid enrollees in four States (California, Michigan, Texas, and New York). Both components involved five interviews over a period of 15 months to obtain information on medical care utilization and expend-

itures and other health-related information. The third component was an administrative records survey that verified the eligibility status of respondents for the Medicare and Medicaid programs and supplemented the household data with claims data for the Medicare and Medicaid populations.

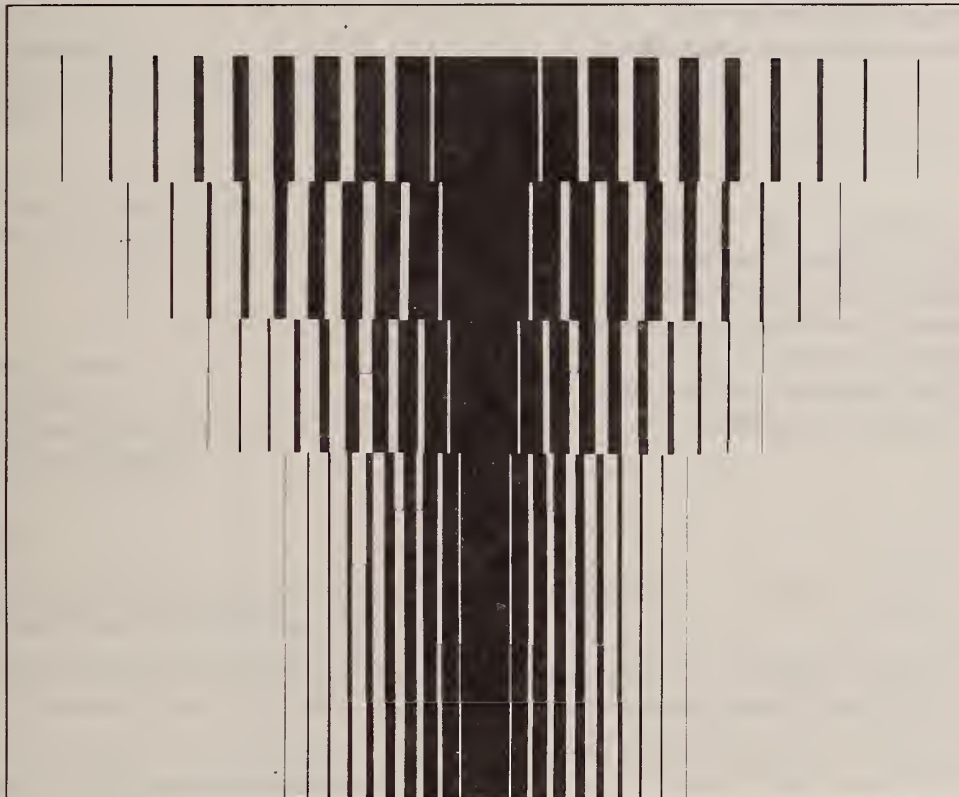
Data collection was accomplished by Research Triangle Institute, Research Triangle Park, N.C., and its subcontractors, the National Opinion Research Center of the University of Chicago, Ill., and SysteMetrics, Inc., Santa Barbara, Calif., under Contract No. 233-79-2032.

Co-Project Officers for the Survey were Robert R. Fuchsberg of the National Center for Health Statistics (NCHS) and Allen Dobson of the Health Care Financing Administration (HCFA). Robert A. Wright of NCHS and Larry Corder of HCFA also had major responsibilities. Daniel G. Horvitz of Research Triangle Institute was the Project Director primarily responsible for data collection, along with Associate Project Directors Esther Fleishman of the National Opinion Research Center, Robert H. Thornton of Research Triangle Institute, and James S. Lubalin of SysteMetrics, Inc. Barbara Moser of Research Triangle Institute was the Project Director primarily responsible for data processing.

RA
410.53
.N282
Series B
no. 13
(1986)
c.2

Health Services Utilization in the U.S. Population by Health Insurance Coverage

Series B, Descriptive Report No. 13



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Published by
Health Care Financing Administration
Office of Research and Demonstrations

December 1986

Copyright Information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; however, citation as to source is appreciated.

Suggested Citation

Garfinkel, S., Corder, L., and Dobson, A.: Health services utilization in the U.S. population by health insurance coverage. *National Medical Care Utilization and Expenditure Survey*. Series B, Descriptive Report No. 13. DHHS Pub. No. 20213. Office of Research and Demonstrations, Health Care Financing Administration, Washington, U.S. Government Printing Office, December 1986.

Contents

Executive Summary	1
Introduction	3
Purpose	3
Survey Background	3
Program Background	4
Definitions, Methods, and Limitations	4
Data Highlights	7
Findings	9
Overview	9
Persons Under 65 Years of Age	13
Persons 65 Years of Age or Over	17
Discussion	23
References	25
Appendixes	
I. Definition of Terms	27
II. Statistical Design	29
III. Weighting and Imputation	30
IV. Reliability of Estimates	33

List of Tables

1. Number and percent of person ever covered and person-years of coverage, by type of health insurance coverage and age: United States, 1980	10
2. Utilization estimates from the National Medical Care Utilization and Expenditure Survey, 1980, the National Health Interview Survey, 1980, and the National Medical Care Expenditure Survey, 1977: United States	11
3. Estimated number of discharges from short-stay hospitals per 1,000 persons in 1970 and 1980 and percent increase 1970-80, by age: United States, 1980	12
4. Estimated average length of stay and days of care per 1,000 persons in 1970 and 1980 and percent change 1970-80, by age: United States	12
5. Percent distribution of persons under 65 years of age, by health insurance coverage, age, sex, and race: United States, 1980	14
6. Percent distribution of persons under 65 years of age, by health insurance coverage and age: United States, 1980	15
7. Selected health service utilization statistics for persons under 65 years of age, by health insurance coverage: United States, 1980	15
8. Percent distribution of persons under 65 years of age, by health insurance coverage and number of hospital discharges: United States, 1980	16
9. Estimated number of ambulatory and physician visits per person for persons under 65 years of age, by health insurance coverage and age: United States, 1980	18

10.	Percent distribution of persons under 65 years of age, by health insurance coverage and number of ambulatory and physician visits: United States, 1980	18
11.	Percent distribution of persons 65 years of age or over, by health insurance coverage, age, sex, and race: United States, 1980	19
12.	Selected health services utilization statistics for persons 65 years of age or over, by health insurance coverage: United States, 1980	20
13.	Percent distribution of persons 65 years of age or over, by health insurance coverage and number of hospital discharges: United States, 1980	21
14.	Percent distribution of persons 65 years of age or over, by health insurance coverage and number of ambulatory and physician visits: United States, 1980	22
15.	Percent of data imputed for several variables: National household survey and State Medicaid household survey components of National Medical Care Utilization and Expenditure Survey.....	31
16.	Percent of persons with complete data for disability days and employment variables: National household survey and State Medicaid household survey components of National Medical Care Utilization and Expenditure Survey.....	31
17.	Percent relative standard errors for Table 1	34
18.	Percent relative standard errors for Table 5	35
19.	Percent relative standard errors for Table 6	35
20.	Percent relative standard errors for Table 7	36
21.	Percent relative standard errors for Table 8	36
22.	Percent relative standard errors for Table 9	36
23.	Percent relative standard errors for Table 10	37
24.	Percent relative standard errors for Table 11	37
25.	Percent relative standard errors for Table 12	37
26.	Percent relative standard errors for Table 13	38
27.	Percent relative standard errors for Table 14	38

Health Services Utilization in the U.S. Population by Health Insurance Coverage

by Steven A. Garfinkel and Larry S. Corder,
Research Triangle Institute, and
Allen Dobson, Health Care Financing Administration

Executive Summary

The goal of the National Medical Care Utilization and Expenditure Survey (NMCUES) is to improve the understanding of the ways in which Americans use and pay for health care. This report is one in a series of descriptive reports based on NMCUES data.

Data concerning several aspects of insurance coverage were collected from household respondents in NMCUES. These data included the kind of insurance in effect for each person (Medicare, Medicaid, private, or other) and the use of inpatient and ambulatory health services. The purpose of this report is to provide descriptive information about the distribution of insurance coverage among the U.S. population and the use of inpatient and ambulatory services by people with different kinds of insurance. The results presented are based on data collected about the civilian noninstitutionalized persons in the NMCUES national household sample.

In this report, "person-year" estimates for health insurance coverage are used; that is, individuals are assigned to different categories of insurance coverage according to the proportion of the year that they were covered by each kind of insurance. Although estimates are calculated as person-years of coverage, they are expressed as persons covered for convenience.

Two important subpopulations—persons under 65 years of age and persons 65 years of age or over—are addressed separately because they have different patterns of insurance coverage and because utilization is so heavily influenced by age.

Persons 65 years of age or over used significantly more inpatient and ambulatory services than persons under 65 years of age did. Only those in the younger group with Medicare, who were disabled, had utilization rates very similar to those of the aged.

Persons under 65 years of age are classified by six mutually exclusive insurance categories:

- All Medicare.
- Medicaid, no private health insurance.
- Private health insurance, no Medicaid.
- Medicaid and private health insurance.
- Other coverage only.
- No insurance.

Persons 65 years of age or over are classified by four mutually exclusive categories:

- Medicare only.
- Medicare and Medicaid.
- Medicare and private or other coverage.
- No Medicare.

These categories of insurance coverage describe the kind of organization or program that supplies the coverage. With the exception of Medicare, which is a national program, these classifications provide little information about the scope of benefits and level of payment available to people who are covered. Considerable variation exists by State within the Medicaid category and by plan or program within the private insurance and other coverage categories. Because the benefit and payment incentives vary within these insurance categories, conclusions about the associations between insurance coverage and utilization must be drawn cautiously.

Medicare and Medicaid together covered more than one-fifth of the civilian noninstitutionalized population of the United States during 1980. A far higher percentage of the population, approximately three-fourths, was covered by private health insurance, which was clearly the principal form of health insurance in the United States. However, the Medicare and Medicaid populations had consistently higher utilization rates than the remainder of the U.S. population had. This finding is expected because Medicare and Medicaid are intended to assist the aged, poor, and disabled—the people who are most likely to need health services and least able to afford them.

The population under 65 years of age included four groups of persons with distinct patterns of utilization. The

NOTE: Several statisticians contributed to the preparation of this report. These include Sara Wheelless, Lisa LaVange, Maura Stokes, and Rick Williams of Research Triangle Institute. Hu Burnett of Research Triangle Institute provided editorial review.

small number of persons with Medicare (1.6 percent of the population under 65 years of age), who were almost all disabled, had the highest inpatient and ambulatory utilization rates. They had 489 hospital discharges per 1,000 persons and used 5,295 hospital days of care per 1,000 persons. They also averaged 13.4 ambulatory visits per person to health providers, including 11.2 physician visits per person. Persons covered by Medicaid (7 percent of the population under 65 years of age) had the next highest utilization of inpatient care (278 hospital discharges and 1,510 hospital days per 1,000 persons) and ambulatory care (5.7 ambulatory visits, including 4.8 physician visits, per person). This group was followed by the privately insured group, comprising 73 percent of the population under 65 years of age. This group had 141 hospital discharges and used 894 hospital days per 1,000 persons. Privately insured persons also made 4.8 ambulatory visits, with 3.8 physician visits, per person. The uninsured, who accounted for 13 percent of the population under 65 years of age, were the least frequent users of service by all measures. They had 63 hospital discharges and used 317 hospital days of care per 1,000 persons. They also made 2.5 ambulatory visits, including 2.0 physician visits, per person.

More than 96 percent of persons 65 years of age or over had Medicare coverage. Persons in this age group who were not covered by Medicare exhibited generally unremarkable utilization rates except for the very few persons without any insurance, who had very low, but statistically unreliable, utilization estimates.

Of persons 65 years of age or over with Medicare, the highest inpatient and ambulatory utilization rates were reported by those who had both Medicare and Medicaid (12 percent of the population). They had 706 hospital discharges and 8,044 days of hospital care per 1,000 persons. They also averaged 11.0 ambulatory visits, with 9.2 physician visits, per person. The high utilization of persons with Medicare and Medicaid is expected because the aged

often incur expensive episodes of illness that enable them to qualify for Medicaid. This pattern is known as the "spend-down" phenomenon.

Persons with private or publicly financed supplements to Medicare other than Medicaid constituted 64 percent of the aged population. They were the second highest users of services, with 370 hospital discharges and 3,734 hospital days per 1,000 persons, and 9.1 ambulatory visits and 7.1 physician visits per person. The next highest users were the 20 percent of elderly people who had Medicare as their only coverage. This group experienced 248 hospital discharges and 2,968 days of hospital care per 1,000 persons. They averaged 5.6 ambulatory visits, with 4.4 physician visits, per person.

With minor exceptions, insurance categories that had high inpatient discharge rates also had high ambulatory utilization rates, and insured persons who had low inpatient rates had low ambulatory rates. This was true for both age groups. When compared with the results of a 1970 national survey conducted by the Center for Health Administration Studies and the National Opinion Research Center, NMCUES estimates for 1980 reflect increasing inpatient utilization rates and stable ambulatory rates for the population as a whole and for elderly people.

In addition to confirming that Medicare and Medicaid beneficiaries have comparately high inpatient and ambulatory utilization rates, NMCUES data support the notion that persons without insurance coverage use services less than others do. The uninsured population contains a slightly higher proportion of young individuals than the total population, which might account for the lower utilization. However, they also exhibit the lowest use of services among persons with the same perceived health status. Thus, there appears to be some effect of insurance on use of services beyond the influence of age and health status.

Introduction

Purpose

In the National Medical Care Utilization and Expenditure Survey (NMCUES), data are collected on the utilization and expenditures for health care of the U.S. population. Information, including amount charged and source of payment, was collected for every ambulatory encounter and inpatient stay reported by survey participants in 1980. The purpose of this report is to examine the utilization experience of the civilian noninstitutionalized U.S. population categorized by type of health insurance coverage. Following the initial discussion of survey and methodological issues, an overview of the insurance and utilization characteristics of the U.S. population is presented in the Findings section.

The overview is followed by separate descriptions of the insurance coverage and utilization of persons under 65 years of age and persons 65 years of age or over. The Findings section is followed by a short discussion, and the report concludes with definitions of terms and methodological appendixes.

Survey Background

The goal of the National Medical Care Utilization and Expenditure Survey (NMCUES) is to improve the understanding of the ways in which Americans use and pay for health care. In addition to providing a reliable statistical description of the types of health services consumed and the amount of dollars spent for them, NMCUES was designed to permit health policy analysts to investigate a broad range of issues concerning the financing and delivery of health services in the United States.

NMCUES data reflect the health care experience of the civilian noninstitutionalized population of the United States during 1980. NMCUES is the seventh survey of national health care utilization and expenditures that has been conducted since 1953. The most recent survey prior to NMCUES, the National Medical Care Expenditure Survey, was conducted in 1977. NMCUES was designed with special emphasis on the experiences of Medicare and Medicaid beneficiaries.

NMCUES comprised three components:

- A randomly selected national household survey (HHS) sample panel of the civilian noninstitutionalized population.
- A randomly selected four-State Medicaid household survey (SMHS) sample panel of the civilian noninstitutionalized population.
- A Medicare and Medicaid administrative records survey (ARS) sample.

Each survey component was designed on a longitudinal basis to provide accurate representations of medical care events occurring throughout 1980.

HHS employed a national probability sample of the civilian noninstitutionalized population, with a sample of 6,600 households (about 17,900 people) representing the national Medicare and Medicaid populations as well as the general population. Five interviews were conducted with respondents regarding events related to medical care received in 1980. The first, second, and fifth interviews were conducted in person; the third and fourth rounds were conducted primarily by telephone. (Each group of interviews is referred to as a survey "round.") A core questionnaire was employed in each interview. This document contained questions concerning medical care utilization, expenditures, sources of payment, health insurance coverage, and employment. Certain summary information that was reported in rounds 1-4 was reviewed with the respondents at each subsequent interview. Inaccurate or incomplete reports were updated at that time. In addition, questionnaire supplements were used in the first, third, and fifth rounds of interviews. The supplement for round 1 contained questions concerning demographic and social characteristics, limitations in activity, and family income. The round 3 supplement included questions about access to care. The round 5 supplement included detailed questions concerning employment during 1980, individual income by source, and functional limitations.

SMHS was in fact four separate surveys conducted in New York, California, Texas, and Michigan. A stratified sample of sufficient size was drawn from each State's Medicaid eligibility file to yield 1,000 Medicaid noninstitutionalized cases (about 3,400 people) in each State. Essentially the same questionnaire and virtually identical data collection and processing steps were used for SMHS and HHS.

ARS, the third NMCUES component, was designed to provide Medicare and Medicaid administrative records for linkage to respondent reports. For HHS, self-reported Medicare and Medicaid enrollment status was verified,

Medicare claims were collected, and the Medicaid eligibility status of a sample of low-income persons who did not report Medicaid enrollment was determined. For SMHS, Medicare and Medicaid enrollment status was verified, and Medicaid and Medicare claims data were collected for survey respondents. The merger of survey data on beneficiary characteristics and out-of-pocket expenditures with eligibility and reimbursement data from Medicare and Medicaid administrative records is a unique feature that increases the value of NMCUES for the study of Medicare and Medicaid policy issues. However, this report is based on HHS data that were not adjusted with ARS information.

NMCUES was conducted during the period February 1980 through April 1981. The overall response rate for HHS was 89 percent. SMHS response rates were 82 percent for California, 80 percent for Michigan, 77 percent for New York, and 92 percent for Texas.

The Health Care Financing Administration (HCFA) and the National Center for Health Statistics (NCHS) cosponsored the NMCUES survey. Data were collected by the Research Triangle Institute (RTI) and its subcontractors, the National Opinion Research Center and Systemetrics, Inc.

This report is one of a series of descriptive reports being prepared by HCFA's Office of Research and Demonstrations, Division of Beneficiary Studies, RTI, and Systemetrics, Inc. The focus of the series is on current health care policy issues related to the Medicare and Medicaid programs. It is intended to provide information for use by government agencies, legislative bodies, professional associations, private insurers, and others with an interest in national patterns of health care use and expenditures. A companion series of reports focusing on the health experiences of the national population is being published by NCHS.

Program Background

The Medicare program provides coverage for hospital, physician, and other medical services for persons 65 years of age or over and for certain other persons. (Other categories of persons covered under Medicare are disabled persons who are entitled to social security disability cash benefits for 24 consecutive months and most persons with end stage renal disease.) Coverage is provided through two separate but complementary Medicare components: hospital insurance (Part A) and supplementary medical insurance (Part B). Hospital insurance provides coverage for the cost of inpatient hospital stays and certain posthospital care, and it requires no premium payment by beneficiaries. Supplementary medical insurance provides coverage for physician services and certain physician-ordered services and supplies, outpatient services, and home health agency services, and it requires the payment of a monthly premium. Total Medicare benefit payments in 1980 were more than \$35 billion.

Records of HCFA's Office of Research and Demonstrations indicate that, in 1980, 26.4 million elderly persons were enrolled in the Medicare hospital insurance program

or supplementary medical insurance program or both. This count includes persons living in institutions, who are estimated to constitute 5-6 percent of aged Medicare beneficiaries. Subtracting the estimated number of institutionalized persons from the total yields an estimate of the total noninstitutionalized aged Medicare beneficiary population of 24.9-25.1 million people. The estimate of the size of this population group from the NMCUES survey is 23.7 million people, with a 95-percent confidence interval around that estimate ranging from 21.4 to 26.0 million people. Thus, the estimate of the population size derived from Medicare program records falls within the limits of the confidence interval around the estimate derived from the NMCUES survey.

Medicaid is a joint Federal and State program that pays for the medical care of low-income persons who are eligible to receive cash assistance under either of the two welfare programs established by the Social Security Act: Aid to Families With Dependent Children and Supplemental Security Income for aged, blind, and disabled people. States may also offer Medicaid to "medically needy" people who do not receive cash assistance but whose incomes fall below certain specified levels.

State participation in the Medicaid program is voluntary. In 1980, all States (except Arizona), the District of Columbia, Puerto Rico, Guam, the Northern Marianas, and the Virgin Islands participated in the Medicaid program. States administer the program within broad Federal guidelines that permit each State considerable discretion in determining income and asset criteria for eligibility, covered services, and provider payment mechanisms. Title XIX of the Social Security Act requires every State Medicaid program to offer specific basic services, including inpatient and outpatient hospital services, laboratory services, X-rays, skilled nursing facility services for individuals 21 years of age or over, home health care services, physicians' services, family planning, rural clinic services, and early periodic screening, diagnosis, and treatment for persons under 21 years of age. States may also choose to offer drugs, eyeglasses, dental care, physical therapy, private-duty nursing, intermediate care facility services, and inpatient psychiatry for aged persons and persons under 21 years of age. States may not ask Medicaid recipients to pay for mandatory services, but they may require the recipients to share the cost of optional services.¹

Definitions, Methods, and Limitations

Selected health care utilization estimates for the civilian noninstitutionalized population of the United States classified by health insurance coverage are presented in this report. Estimates include number of persons covered by each kind of insurance and their use of hospital and ambulatory services. The relationship of personal

¹This paragraph is a description of the Medicaid program in 1980.

characteristics, utilization, and health insurance coverage is a central issue in the search for effective measures to control health care costs.

Two methodological concepts used in this report need to be defined so that the reader may accurately interpret the findings and compare them with the results of other studies. These concepts both involve classification of insurance coverage. The first is the definition of insurance categories, and the second is the allocation of persons who change coverage during the year to multiple categories on a person-year equivalent basis.

Insurance coverage categories—The term “insurance” is sometimes used narrowly to mean the sharing of the risk of high-cost, low-probability events or as a term for actuarially based, third-party reimbursement programs to which the beneficiaries have contributed payments. In this report, “insurance” is used as a general term for all forms of privately and publicly funded prepayment and tax-supported health care reimbursement programs. This definition encompasses Medicare, Medicaid, other publicly financed programs, privately financed prepaid health plans, Blue Cross and Blue Shield plans, and commercial insurance.

In NMCUES, insurance coverage was determined in several ways. First, household respondents were asked in each round to identify all persons covered by each kind of insurance. Second, anyone who reported a payment for health care by a particular kind of insurance was considered to be covered by it. Third, anyone who reported insurance coverage or demographic characteristics that are associated with almost certain Medicare or Medicaid coverage was considered to be so covered. Four basic kinds of insurance coverage are considered in this report: Medicare, Medicaid, private insurance, and other health plans.

It is useful, when classifying persons by kind of insurance coverage, to discuss persons under 65 years of age separately from persons 65 years of age or over, because the two groups have distinctly different patterns of insurance coverage. This approach also decreases the extent to which differences in utilization by insurance coverage are confounded with age. With the exception of Table 1, in which estimates of total persons covered by each basic kind of insurance are presented, the two age groups are discussed separately and are classified differently with respect to their insurance coverage.

Persons under 65 years of age have been classified by six different combinations of insurance coverage. (The terms given in parentheses are the short names sometimes used in the text.)

- *All Medicare (“Medicare”)*—This group includes any person in this age group who had Medicare coverage alone or in combination with any other kind of insurance. Medicare mainly covers persons 65 years of age or over. However, it also covers persons under 65 years of age who are disabled and have been receiving social security cash benefits for at least 24 months or who have end stage renal disease. In this report, these

persons are referred to collectively as “disabled” Medicare beneficiaries. They represent a very small part of the population but experience extremely high utilization rates.

- *Medicaid, no private health insurance (“Medicaid”)*—This group excludes anyone with Medicare or private health insurance and includes persons with Medicaid alone or Medicaid combined with other publicly financed programs. Almost everyone in this group is poor, and many are disabled or members of families with children, often one-parent families. Some Medicaid recipients—the “medically needy”—must provide for their own basic needs but are assisted with payments for medical care. In addition to the poor and medically needy, this category may include individuals who had a comparatively high income for part of the survey year but had little or no income for the remainder of the year, which enabled them to qualify for Medicaid.
- *Private health insurance, no Medicaid (“private insurance”)*—This category excludes anyone with Medicare or Medicaid. It includes persons covered by commercial insurance, Blue Cross and Blue Shield, health maintenance organizations, other prepaid health plans, and other reimbursement programs operated by private industry, government, or schools. It also includes a small proportion of persons who reported private insurance combined with a publicly financed program other than Medicare and Medicaid. Private insurance is the principal form of health coverage in the United States and covers the majority of Americans.
- *Medicaid and private health insurance (“Medicaid and private insurance”)*—This category also excludes anyone with Medicare. It includes all persons under 65 years of age who had Medicaid coverage and private health insurance simultaneously as well as persons who had Medicaid and private insurance combined with some other public program. It may seem contradictory to have Medicaid and private insurance at the same time, but such a situation can result from overlapping coverage during transition periods or other unusual circumstances.
- *Other coverage only (“other coverage”)*—This group excludes anyone who was covered by Medicare, Medicaid, or private insurance. It includes persons who reported one or more public programs other than Medicare and Medicaid as their only source of coverage. These could be Federal, State, or local programs, including the Civilian Health and Medical Program of the Uniformed Services, the Indian Health Service, the Veterans’ Administration, crippled children’s programs, local welfare, and local health department programs. This category also includes some individuals who received health coverage through public employment. The contribution of any one of these programs to this group is believed to be relatively small, and the

group as a whole represents a very small proportion of the population under 65 years of age.

- *No insurance*—This group includes persons who reported no health coverage of any kind. They are often young adults who are healthy and have not purchased private health insurance, are ineligible for Medicaid because they are poor and they have no children, and are ineligible for private group health insurance because they are unemployed or employed in jobs that do not provide health insurance benefits.

Persons 65 years of age or over have a very different pattern of insurance coverage than those under 65 years of age have and they are classified differently in this report. The difference results from Medicare coverage. So few persons under 65 years of age are covered by Medicare that they have been grouped together regardless of any other coverage they have. However, almost everyone 65 years of age or over is covered by Medicare, so it is important to make distinctions between persons who have other kinds of coverage in addition to Medicare and those who do not.

- *Medicare only*—Persons in this group reported Medicare as their only source of coverage.
- *Medicare and Medicaid ("crossovers")*—These persons are called Medicare/Medicaid crossovers because they are covered by both major Federal reimbursement programs simultaneously. They tend to be poorer and less healthy and to use more services than other persons in their age group.
- *Medicare and private or other coverage ("Medicare and private insurance")*—This group includes persons who reported a private insurance plan or one of the other public programs (except Medicaid) in addition to Medicare. The vast majority of these people reported private insurance rather than other coverage, so throughout the report they are frequently referred to as the group with Medicare and private insurance. These people represent almost two-thirds of the population of this age group. Most have chosen to purchase private insurance to supplement Medicare or have received additional private or public coverage as a benefit of employment.
- *No Medicare*—The small proportion of persons 65 years of age or over without Medicare are in this group. They include, for example, retired Federal employees and other persons, such as domestic workers, who failed to achieve 40 quarters of employment covered by the social security system. This category includes persons who have some form of coverage other than Medicare, such as private insurance, Medicaid, and other public coverage, and persons who have no third-party coverage of any kind. Although these two groups are distinct from a conceptual point of view, their small samples preclude reliable estimates. Thus, they have been combined into a single category of persons who do not have Medicare coverage.

These categories of insurance coverage describe the kind of organization or program that supplies the coverage. With the exception of Medicare, which is a national program, insurance classifications provide little information about the scope of benefits and level of payment available to persons who are covered. Considerable variation exists by State within the Medicaid category and by plan or program within the private insurance and other coverage categories. Because the benefit and payment incentives vary within these insurance categories, conclusions about the associations between insurance coverage and utilization must be drawn cautiously.

Allocation of person-year equivalents—The estimates presented in this report are expressed as person-year equivalents rather than persons. It was possible for one person to change coverage during the course of the survey year because insurance coverage information was collected five times during the year for each person. The person-year approach enables assignment of each person to a unique category of insurance coverage for the proportion of the year during which he or she was actually covered by that category. Thus, statistics were calculated as person-year equivalents rather than as the number of persons who had that coverage at some time during the year.

The estimated number of person-years is the same as the estimated number of persons in the total population but may differ for estimates of insurance coverage subgroups or any other variable for which an individual's status may change from one survey round to the next. This difference occurs because individuals who change categories during the survey are allocated to both the old and new categories on a fractional basis when estimating person-years of coverage. However, they are allocated entirely to only one category when making estimates of persons.

Because of the difference in methods used to allocate individuals to insurance categories, estimates in different tables and reports that would otherwise be identical will differ. With regard to health insurance coverage, estimates of covered person-years will be smaller than otherwise identical estimates of persons covered. This effect is demonstrated in Table 1, in which the number and percent of persons who had each of the four basic kinds of insurance coverage² estimated by both methods are compared.

The magnitude of the difference in each category depends on the frequency with which persons acquire or relinquish coverage. When coverage is relatively stable, the two estimates will be similar. When a comparatively large proportion of the population is covered for less than the full year, the difference between the two estimates will also be comparatively large.

²Health insurance categories in Table 1 are not mutually exclusive. Estimates are for all individuals who were covered by each type of insurance regardless of whether or not they had another kind of insurance as well. Insurance categories used in the other tables in this report are mutually exclusive.

Although the estimates in this report are based on person-year equivalents, the term “person” is used in the text and tables. It is less cumbersome and more realistic. It is, therefore, important to keep the difference between these measures in mind when comparing estimates from NMCUES and from other reports and surveys that appear to be identical in other respects.

Limitations—Two kinds of limitations deserve brief mention. The first relates to sample surveys in general; the second involves this particular NMCUES report. In all sample surveys, estimates of frequencies, proportions, and associations among variables differ slightly from the counts, proportions, and measures of association based on a complete census. In addition to this sampling error, the results of sample surveys can be further affected by nonresponse and missing data. Adjustments have been made to the sample weights to correct for nonresponse bias, and elaborate statistical procedures have been used to impute values for missing data on certain key items. Nevertheless, there is no way to determine whether the assumptions that underlie the use of these procedures are always correct. However, these limitations are true of all sample surveys and do not apply just to NMCUES.

Other limitations are associated with NMCUES and this report specifically. The major limitation results because only the noninstitutionalized population of the United States was included in the NMCUES samples. HCFA has estimated that 5-6 percent of Medicare enrollees are institutionalized and that another one-half of a percent or so reside outside of the United States. The impact of the latter exclusion is negligible; Medicare-covered services are not generally accessible to otherwise eligible persons living outside the United States. Institutionalized persons, on the other hand, are probably using covered services and having claims paid by Medicare. Since neither of these subgroups of Medicare enrollees are represented in the NMCUES data, reported findings may not be applicable to them specifically. Furthermore, estimates from NMCUES differ from official program statistics that are based on all enrollees in the program and, therefore, include the institutionalized. The same caveat applies to estimates for persons with Medicaid, private insurance, and other coverage. HCFA Medicaid program statistics, which are counts of the number of recipients (persons for whom Medicaid payments were made), also differ from NMCUES estimates. In NMCUES, the number of persons eligible to receive Medicaid payments is estimated whether or not payments were actually made during 1980.

NMCUES data in this report are presented in the form of unadjusted crosstabulations of insurance coverage, utilization, and demographic variables. The variables are defined in Appendix I, Definition of Terms. Other reports in this series address policy and research questions using a variety of multivariate techniques.

Because the data in this report are based on a sample of the U.S. population, the estimates are subject to sampling error. A relative standard error (RSE), the standard error divided by the survey estimate, is presented for each

estimate in all tables so that the reader can examine and interpret all results. Estimates that have an estimated percent RSE greater than 50 percent or that are based on fewer than 20 observations are considered unreliable and have been suppressed.

Two-way crosstabulations are presented, but no effort has been made to evaluate the impact on health services utilization of more than two variables at a time. No formal hypotheses concerning the relationship among demographic, geographic, insurance, and utilization variables were stated, nor were measures of association computed.

Formal tests of statistical significance were not performed, but the standard errors of estimates were available for most estimated population counts, averages, and proportions. This made it possible to establish a 95-percent confidence interval around those estimates equal to ± 2 standard errors of the estimate. Only in cases where the confidence intervals around two or more estimates did not overlap were the estimates considered significantly different in this report. The relative standard errors on which these confidence intervals are based are provided in Appendix IV. This procedure is not as statistically rigorous as the more precise statistical test, but it is sufficient for the case at hand. For most situations presented here, the method should yield comparisons at approximately a 10-percent significance level. Further information on the form and use of relative standard errors and confidence intervals appears in Appendix IV.

Data Highlights

Highlights of the findings that are presented in greater detail in the next section include the following.

- According to Medicare program statistics, approximately 30.3 million persons had Medicare coverage for all or part of 1980: 27.0 million persons 65 years of age or over and 3.3 million persons under 65 years of age.
- It is estimated from NMCUES that Medicare covered almost 28 million persons for all or part of 1980: 23 million persons 65 years of age or over and 4.6 million persons under 65 years of age.
- Many Medicare beneficiaries were covered for only part of 1980, so Medicare provided 26 million person-years of coverage: 23 million persons 65 years of age or over and 3.1 million persons under 65 years of age.
- Medicaid is estimated to have covered almost 25 million different persons for all or part of 1980 and to have provided 21 million person-years of coverage. Of the 25 million persons who were covered, it is estimated that 23 percent (percent RSE = 6.33) were covered for only part of 1980.
- Private insurance covered a majority of Americans during 1980, an estimated 176 million of 217 million persons, and provided 163 million person-years of coverage.

- It is estimated that approximately 41 million persons (percent RSE = 5.24) were uninsured at some time during 1980. They constituted 19 percent (percent RSE = 3.92) of the noninstitutionalized population. Approximately 15 million of these persons were estimated to be uninsured for all of 1980.
- Combining the two groups of uninsured persons results in an estimate of 26 million uninsured person-years in 1980.
- Almost three-fourths of the population (in person-years) who were under 65 years of age had private insurance, 13 percent were uninsured, and 7 percent had Medicaid. The remaining 5 percent (percent RSE = 9.59) had Medicare or other combinations of insurance.
- Of those under 65 years of age, the most intensive users of health services were persons with Medicare coverage (who were all disabled), followed by those with Medicaid, private insurance, and no insurance, in that order.
- More than 96 percent of persons 65 years of age or over reported Medicare coverage. About 12 percent of persons 65 years of age or over were Medicare/Medicaid crossovers, 64 percent had Medicare and private insurance or some other public coverage, and 21 percent had Medicare alone.
- Age and race are related to the kinds of insurance covering people 65 years of age or over. Persons 75 years of age or over and black persons are more likely to have Medicaid and less likely to have private insurance to supplement Medicare than persons 65-74 years of age and white persons are.
- Medicare/Medicaid crossovers had the highest inpatient and ambulatory utilization rates of any group 65 years of age or over. They had estimated rates for hospital discharges and days of care that were twice the rates of persons with Medicare and private or other coverage, the second most intensive service users.

Findings

Overview

Insurance programs—Table 1 contains data on the number and percent of persons who had each of the four basic kinds of health insurance (Medicare, Medicaid, private insurance, and other coverage) in 1980, estimated by the person and person-year equivalent methods. The insurance categories used in Table 1 are not exclusive, so a person who had more than one kind of coverage is counted in more than one category. The estimates of “persons ever covered” are useful for comparing NMCUES results with those shown in other reports for which the person-year method of estimation was not used.

The NMCUES estimate for persons in the civilian noninstitutionalized population who were ever covered by Medicare (i.e., persons who had Medicare for any length of time during 1980) totals 27.6 million. Approximately 4.6 million persons, or 17 percent of the total (percent RSE = 5.93), are estimated to be under 65 years of age and eligible for Medicare through the disability or end stage renal disease programs. This estimate is about 1.5 times greater than the 3 million disabled beneficiaries identified in Medicare statistical files as of July 1, 1980. All estimates in this report are based on unverified reports of household respondents.³ The remaining 23.0 million persons were 65 years of age or over and eligible for Medicare through the program for the aged.⁴ More than 96.5 percent of persons 65 years of age or over were covered by Medicare for at least part of 1980.

Medicare program statistics indicate 28.5 million beneficiaries in 1980, 10.4 percent under 65 years of age and 89.6 percent 65 years of age or over (Health Care Financing Administration, 1980). As noted in the discus-

sion of limitations, these program statistics include persons who are institutionalized and those who live abroad.

It is estimated that 24.6 million persons were covered by Medicaid at some time during 1980: 85 percent (percent RSE = 1.21) under 65 years of age and 15 percent (percent RSE = 6.76) 65 years of age or over. Approximately 11 percent of the population under 65 years of age and 16 percent of persons 65 years of age or over are estimated to have had Medicaid coverage at some time in 1980. Of all persons estimated to have been covered by Medicaid, 23 percent were covered for only part of the year.

The Medicaid program count of 20.2 million Medicaid recipients in the United States in 1980 includes institutionalized persons, but the NMCUES estimate of 24.6 million does not. Nevertheless, the NMCUES estimate is larger because it includes persons who were eligible for Medicaid, and the program statistics include only those for whom Medicaid made payments.

NMCUES also estimates that 176.0 million persons of all ages, or 81 percent of the U.S. population, had private insurance; 20.4 million persons, 9 percent, had other kinds of coverage. Approximately 15.4 million persons, or 7.1 percent of the population, were estimated to have been without insurance coverage of any kind for all of 1980.

The estimates for “person-years of coverage” (person-year equivalents) in Table 1 vary from the estimates of “persons ever covered,” as one would expect. As mentioned in Definitions and Methods, the estimate of person-years is smaller than the estimate of persons ever covered for every insured category but larger for the uninsured. Persons who were uninsured for only part of the year are not counted as uninsured when making estimates of persons ever covered because they had insurance for the other part of the year. For estimates of person-years, those persons are considered uninsured for the part of the year that they had no insurance, so the estimate is larger—12.0 percent of person-years uninsured, compared with 7.1 percent of persons who were completely uninsured for the entire year. It is estimated that 40.9 million persons, or 18.8 percent of the civilian noninstitutionalized U.S. population, were uninsured at some time during 1980 (Table 1, footnote).

Person-years allow closer linkage of utilization and the kind of insurance in force during the period of time that the service was used. Therefore, the estimates in the remainder of this report are for person-years. Nevertheless, the term “person” is used. (See Appendix I.)

³A subsequent estimate of 3.9 million disabled beneficiaries based on verification with Medicare eligibility files became available as this report went to press. The remaining difference between the 3.9 million disabled beneficiaries estimated by NMCUES and the 3.0 million counted by HCFA is attributable to sampling error and the fact that the NMCUES estimate includes everyone who had Medicare at any time during the year, and 3.0 million is the July 1 count.

⁴In other NMCUES reports that are devoted exclusively to the aged Medicare population, a slightly different definition of “aged” is used. For this report, persons were classified by their age as of July 1, 1980. For other reports, all persons who were 64 years of age on January 1, and thus turned 65 years of age sometime during 1980, were considered aged. In those reports, the estimate given for aged persons covered by Medicare in 1980 is 23.7 million (percent RSE = 4.86). The difference between the two estimates is not statistically significant.

Table 1
Number and percent of persons ever covered and person-years of coverage,
by type of health insurance coverage and age; United States, 1980

Age and type of estimate	All persons	Health insurance coverage				
		Medicare	Medicaid	Private insurance	Other	Uninsured
Total		Population in millions				
Persons ever covered	217.9	27.6	24.6	176.0	20.4	115.4
Person-years of coverage	217.9	26.0	21.2	162.7	12.8	26.1
Under 65 years of age						
Persons ever covered	194.0	4.6	20.9	159.1	18.9	115.2
Person-years of coverage	194.0	3.1	18.1	146.9	12.0	25.8
65 years of age or over						
Persons ever covered	23.8	23.0	3.7	17.0	1.4	(2)
Person-years of coverage	23.8	22.9	3.1	15.9	0.8	0.3
Total		Percent				
Persons ever covered	100.00	12.69	11.30	80.79	9.35	17.07
Person-years of coverage	100.00	11.95	9.74	74.70	5.87	111.96
Under 65 years of age						
Persons ever covered	100.00	2.39	10.76	81.98	9.75	17.83
Person-years of coverage	100.00	1.60	9.35	75.70	6.12	113.38
65 years of age or over						
Persons ever covered	100.00	96.52	15.64	71.08	6.04	10.88
Person-years of coverage	100.00	96.23	12.90	66.62	3.45	11.08

¹In the uninsured category, "persons ever covered" means persons uninsured for the entire year. The difference between the number of persons uninsured for the entire year and the number of uninsured person-years results from the fact that some persons were uninsured for only part of the year. The sum of persons uninsured for the entire year and persons uninsured for part of the year is the number of persons who were ever uninsured during 1980. The population estimates and percentages of persons ever uninsured during 1980 are: Total—40.9 million (18.8 percent); under 65 years of age—40.6 million (20.9 percent); and 65 years of age or over—340,226 (1.4 percent). The relative standard errors for these values are shown in the footnote to Table 17.

²Relative standard error is more than 50 percent, or sample size is less than 20.

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 17 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Age is the age as of July 1, 1980. Insurance categories are not mutually exclusive.

As mentioned earlier, only Table 1 shows estimates of total numbers of persons covered, for which a person may be counted in more than one category simultaneously. In studying the relationships between insurance coverage and health services utilization, it is important to distinguish persons who have certain combinations of insurance coverage (e.g., Medicare and Medicaid, Medicare and private insurance) because of different public policy implications. Therefore, the remaining tables in this report are mutually exclusive tables in which all members of the population are classified in only one insurance coverage category.

Inpatient utilization—Estimates of five important measures of health services utilization are presented in Table 2 by the major age distinction discussed in this report—under 65 years of age and 65 years of age or over. Beginning with the three measures of inpatient utilization, the total U.S. population (including all age groups) is estimated to have had 175 short-stay hospital discharges per 1,000 persons, 1,282 days of hospital care per 1,000 persons, and an average hospital stay of 7.3 days in 1980. Persons under 65 years of age had 150 short-stay hospital discharges, 942 inpatient days per 1,000 persons, and an average stay of 6.3 days. Persons 65 years of age or over

had 381 short-stay hospital discharges, 4,047 days of care per 1,000 persons, and an average stay of 10.6 days.

Comparable estimates from the 1980 National Health Interview Survey (NHIS) differ somewhat from these estimates (Table 2), although allowance for sampling error sharply reduces or completely accounts for the differences. NHIS estimates are 122, 277, and 139 discharges per 1,000 persons for those under 65 years of age, 65 years of age or over, and the total population, respectively (Division of Health Interview Statistics, 1982). The comparable NMCES estimates—132, 310, and 150—are uniformly greater than the NHIS estimates. Most likely this difference occurred because NHIS used a semiannual recall period for these data rather than the quarterly period used in NMCES. Methodological research by the National Center for Health Statistics suggests that underreporting of utilization by respondents in household surveys tends to increase as the recall period increases (Cannel, Marquis, and Laurent, 1977).

The estimates for hospital days of care from NHIS and NMCUES exhibit a similar relationship. For the population under 65 years of age, 65 years of age or over, and all ages, NHIS estimates were 852, 2,772, and 1,062

Table 2
Utilization estimates from the National Medical
Care Utilization and Expenditure Survey,¹ 1980,
the National Health Interview Survey,² 1980, and
the National Medical Care Expenditure Survey,³
1977: United States

Item	All ages	Persons under 65 years of age	Persons 65 years of age or over
Number of persons		Population in thousands	
NMCUES, 1980	217,851	194,020	23,832
NHIS, 1980	217,923	194,032	23,891
NMCES, 1977	212,098	189,814	22,284
Hospital discharges		Rate per 1,000 persons	
NMCUES, 1980	175	150	381
NHIS, 1980	139	122	277
NMCES, 1977	150	132	310
Hospital days			
NMCUES, 1980	1,282	942	4,047
NHIS, 1980	1,062	852	2,772
NMCES, 1977	1,136	874	3,379
Average length of stay		Stay in days	
NMCUES, 1980	7.32	6.28	10.63
NHIS, 1980	7.60	6.98	10.00
NMCES, 1977	7.57	6.62	10.90
Ambulatory visits		Number per person	
NMCUES, 1980	5.16	4.76	8.46
NHIS, 1980	(4)	(4)	(4)
NMCES, 1977	(4)	(4)	(4)
Physician visits			
NMCUES, 1980	4.12	3.81	6.65
NHIS, 1980	54.20	54.00	55.85
NMCES, 1977	4.10	3.80	6.00

¹National Medical Care Utilization and Expenditure Survey (NMCUES) data.

²National Health Interview Survey (NHIS) data (Jack, 1981).

³National Medical Care Expenditure Survey (NMCES) data supplies by the National Center for Health Services Research.

⁴Data not available.

⁵Estimated physician visits including telephone calls (Jack, 1981), less the number of telephone calls. Data from the Division of Health Interview Statistics, National Center for Health Statistics.

days per 1,000, respectively (Division of Health Interview Statistics, 1982), compared with NMCUES estimates of 942, 4,047, and 1,282. Again, sampling and recall error account for much of the difference between estimates from the two surveys.

NMCUES estimated rates of hospital days and discharges for the aged population that are also very similar to rates calculated from Medicare program statistical files. Medicare program rates are based on total discharges in 1980 for persons living in the 50 States and the District of Columbia and the number of Medicare hospital insurance and supplementary medical insurance enrollees on July 1. The 1980 discharge rate for the Medicare population 65 years of age or over was 362 per 1,000 enrollees, compared with the NMCUES estimate of 381. According to Medicare program figures, these persons used 3,853 days of care per 1,000 persons. NMCUES estimated 4,047 days of care per 1,000 persons. In both cases, the rate based on ad-

ministrative data is well within the 95-percent confidence interval of the NMCUES estimate.

NMCUES is the most recent of seven utilization and expenditure surveys conducted since 1953. The 1970 survey was conducted by the University of Chicago's Center for Health Administration Studies (CHAS) and the National Opinion Research Center. It produced estimates of 140 hospital admissions per 1,000 person-years of coverage for the entire civilian noninstitutionalized U.S. population and 210 hospital admissions per 1,000 person-years for persons 65 years of age or over (Andersen, Lion, and Anderson, 1976).

NMCUES produced estimates of 175 discharges per 1,000 person-years for the total population and 381 per 1,000 person-years 65 years of age or over. The increase in hospital stays from 1970 to 1980 is a continuation of the trend toward higher utilization reported by CHAS for the period 1953-70 (Andersen, Lion, and Anderson, 1976). The estimate of hospital days of care per 1,000 person-years for the total civilian noninstitutionalized population increased slightly from 1970 to 1980, from 1,210 to 1,282 days; the estimated average length of stay decreased from 8.9 to 7.3 days.⁵

The increase between the discharge rates estimated by CHAS in 1970 and by NMCUES in 1980 was approximately 25 percent for the population as a whole, compared with 81 percent for persons 65 years of age or over. The absolute magnitude of the difference between 1970 and 1980 estimates is affected by sampling error and differences in data collection and analysis methods. However, the results suggest that the rate of hospitalization has increased more among persons 65 years of age or over than it has for persons under 65 years of age.

This observation is confirmed by Lubitz and Deacon (1982), who found that the short-stay hospital discharge rate for persons under 65 years of age increased 11 percent from 1967 to 1979, compared with 35 percent for persons 65 years of age or over. Lubitz and Deacon based their estimate of change on data from the Hospital Discharge Survey (HDS), in which institutional data are collected from hospitals.

NHIS is a household survey and thus more analogous to NMCUES. NHIS estimates also show that the rate of hospitalization has increased more for persons 65 years of age or over than for the younger population. NHIS estimates for persons under 65 years of age were actually identical in 1970 and 1980, 122 discharges per 1,000 persons, but the rate among persons 65 years of age or over increased 18 percent (Jack, 1981; Wilder, 1973). Table 3 contains estimates of change from all three sources.

All three sources also indicate that the overall growth in the discharge rate has been offset by a decreasing aver-

⁵The 1970 estimates reported here are based on unverified social survey responses. Andersen, Lion, and Anderson (1976) prefer to report "best estimates," which are survey responses that have been adjusted on the basis of independent verification. Since verification of services will not be available for the NMCUES HHS data, the unverified 1970 survey data are more comparable than the best estimates.

age length of stay (ALOS) over the same period, resulting in comparatively small changes in days of care per 1,000 persons (Table 4). Furthermore, although persons 65 years of age or over experienced a greater increase in discharge rates than younger persons did, they also had a greater decrease in ALOS, so that the change over time in days of care per 1,000 persons was relatively similar for both age groups.

Lubitz and Deacon (1982) reported that persons 65 years of age or over experienced a 35-percent increase in discharges per 1,000 persons and a 23-percent decrease in ALOS, resulting in a 2-percent increase in days of care per 1,000 persons. Persons under 65 years of age had a smaller increase in discharge rate (11 percent) and a smaller decrease in ALOS (15 percent), yielding a 6-percent decrease in days of care from 1967 to 1979.

NHIS data for 1970 and 1980 show an even smaller difference in changes in days of care by age. NHIS reported that persons 65 years of age or over had an 18-percent increase in discharge rate offset by a 24-percent decrease in ALOS, resulting in a 10-percent decrease in days of care per 1,000 persons. Persons under 65 years of age experienced no change in discharge rate but a 9-percent decrease in ALOS. Thus, they had a 9-percent decrease in days of care per 1,000 persons, essentially the same decrease experienced by persons 65 years of age or over.

Lubitz and Deacon were unable to attribute the difference in the rate of change for discharges between persons 65 years of age or over and the younger population to the demographic composition of the aged population, their mortality, surgery rates, insurance coverage, or the supply of physicians and hospital beds. They speculate that persons 65 years of age or over have more ailments for which care is sought and are thus more susceptible to the economic and technological forces that encourage high levels of use.

Lubitz and Deacon also note that the rate of growth for discharges becomes an increasingly important measure under the new Federal reimbursement system, which provides a fixed payment for all discharges with the same

diagnosis. The importance of discharges to hospital revenue has increased compared with the importance of days of care. The greater rate of increase for persons 65 years of age or over is particularly important because the per capita discharges are much higher in this age group in an absolute sense and because, for the time being, this system of payment is limited to Medicare beneficiaries.

Ambulatory utilization—The two measures of ambulatory utilization shown in Table 2 are ambulatory medical visits and physician visits. Ambulatory medical visits are defined as personal visits for health care (ex-

Table 3
Estimated number of discharges from short-stay hospitals per 1,000 persons in 1970 and 1980 and percent increase 1970-80, by age: United States

Age	Discharges per 1,000 persons		Percent increase
	CHAS, 1970	NMCUES, 1980	
Total	140	175	25
Under 65 years of age	(1)	150	(1)
65 years of age or over	210	381	81
	NHIS, 1970	NHIS, 1980	
Total	133	139	5
Under 65 years of age	122	122	0
65 years of age or over	234	277	18
	HDS, 1967	HDS, 1979	
Total	144	170	18
Under 65 years of age	130	144	11
65 years of age or over	289	389	35

¹Data not available.

SOURCES: Center for Health Administration Studies (CHAS) data for 1970 (Andersen, Lion, and Anderson, 1976). National Medical Care Utilization and Expenditure Survey (NMCUES) data for 1980. National Health Interview Survey (NHIS) data from 1970 (Wilder, 1973) and 1980 (Jack, 1981). Hospital Discharge Survey (HDS) data for 1967 and 1979 (Lubitz and Deacon, 1982).

Table 4
Estimated average length of stay and days of care per 1,000 persons in 1970 and 1980 and percent change 1970-80, by age: United States

Age	Average length of stay in days		Percent change	Days of care per 1,000 persons		Percent change
	CHAS, 1970	NMCUES, 1980		CHAS, 1970	NMCUES, 1980	
Total	8.9	7.3	-3	1,210	1,282	+6
	NHIS, 1970	NHIS, 1980		NHIS, 1970	NHIS, 1980	
Total	8.6	7.6	-12	1,139	1,062	-7
Under 65 years of age	7.7	7.0	-9	936	852	-9
65 years of age or over	13.1	10.0	-24	3,075	2,772	-10
	HDS, 1967	HDS, 1979		HDS, 1967	HDS, 1979	
Total	8.4	7.2	-14	1,215	1,224	+1
Under 65 years of age	7.1	6.0	-15	920	864	-6
65 years of age or over	14.1	10.8	-23	4,086	4,182	+2

SOURCES: See Table 3.

cluding dentistry), received from any kind of provider at any kind of facility, that did not occur during an inpatient hospital stay. Visits to the home are included, but telephone calls are not. Physician visits are defined as ambulatory visits that were with a doctor of medicine or osteopathy or with a person supervised by a doctor of medicine or osteopathy.

The estimated mean number of ambulatory visits per person for the entire U.S. population in 1980 was 5.2. Persons under 65 years of age reported an average of 4.8 ambulatory visits per person, and persons 65 years of age or over had 8.5 visits. The estimated numbers of physician visits per person were 4.1 for the combined U.S. population, 3.8 for persons under 65 years of age, and 6.7 for those 65 years of age or over.

NHIS estimates of average number of physician visits, for which a 2-week recall period was used, are similar.⁶ Excluding telephone contacts, which are usually included in NHIS published data, 1980 estimates indicate that persons under 65 years of age averaged 4.0 physician visits per person, persons 65 years of age or over averaged 5.9 visits, and the entire population had 4.2 visits (Division of Health Interview Statistics, 1982). With allowance for error because of sampling, recall, and rounding, these estimates are fairly close to those from NMCUES.

The 1977 National Medical Care Expenditure Survey (NMCES) also produced similar physician visit estimates: 3.8 visits for persons under 65 years of age, 6.0 visits for persons 65 years of age or over, and 4.1 visits for the combined U.S. population (Kasper et al., 1980). However, these estimates include telephone contacts.

The NMCUES estimates of 4.1 physician visits per person overall and 6.7 visits per person 65 years of age or over represent virtually no change from the 1970 CHAS estimates of 4.0 and 6.4 visits, respectively.

Persons Under 65 Years of Age

Insurance coverage—Persons under 65 years of age are classified by six mutually exclusive combinations of insurance coverage:

- Medicare, alone or in combination with any other type of coverage (“Medicare”).
- Medicaid without private insurance or Medicare (“Medicaid”).
- Private insurance without Medicaid or Medicare (“private insurance”).
- Medicaid and private insurance simultaneously without Medicare (“Medicaid and private insurance”).

- Other publicly financed coverage without Medicare, Medicaid, or private insurance (“other coverage”).
- No insurance coverage of any kind.

It is estimated from NMCUES that 194 million persons, or 89.1 percent (percent RSE = 0.50) of the total noninstitutionalized U.S. population, were under 65 years of age in 1980. The distribution of these persons (in person-years) by insurance coverage appears in Table 5.

The most common kind of insurance coverage for persons under 65 years of age was private insurance, which accounted for 73.1 percent of the population. The second largest group, 13.3 percent of persons under 65 years of age, had no insurance coverage.⁷ Approximately 7.1 percent of persons under 65 years of age had Medicaid, and 1.9 percent had Medicaid and private insurance simultaneously. About 1.6 percent of persons under 65 years of age were covered by Medicare because they were disabled.

The age-, sex-, and race-specific distribution of insurance coverage for persons under 65 years of age is also shown in Table 5. The probability of having Medicare coverage rose steadily from 0.1 percent for persons under 4 years of age to 8.3 percent for those 55-64 years of age. This trend reflects the increasing probability of acquiring a disability as age increases.

The likelihood of Medicaid coverage was much higher in the younger age groups (17.1 percent under 4 years of age and 11.9 percent 5-14 years of age) than it was for the total population under 65 years of age (7.1 percent). This reflects Medicaid eligibility criteria. In the group under 65 years of age, eligibility for Aid to Families with Dependent Children (AFDC) is the main criterion for Medicaid coverage. In 1979, 77 percent of Medicaid recipients under 65 years of age were eligible under AFDC, and 51 percent were children under 21 years of age (Muse and Sawyer, 1982).

For 1980, NMCUES estimates that 49.1 percent (percent RSE = 2.94) of persons under 65 years of age who had Medicaid were under 15 years of age, compared with 23.5 percent (percent RSE = 1.87) of those with private insurance, 24.1 percent (percent RSE = 4.40) of those who were uninsured, and 25.8 percent (percent RSE = 1.63) of all persons under 65 years of age (Table 6). Thus, the Medicaid population contains a disproportionately high percentage of children in the population under 65 years of age.

As seen in Table 5, private insurance was more common among persons 25 years of age or over than among younger individuals, possibly because older persons receive coverage as a fringe benefit of employment. Nevertheless, private insurance was by far the most common form of coverage for every age group, ranging from 61.4 percent in the group under 4 years of age to 82.2 percent for persons 35-44 years of age.

⁶NHIS and the National Medical Care Expenditure Survey define “physician” as a doctor of medicine or osteopathy. Estimates from these surveys are therefore comparable to the NMCUES physician visit estimates in this report. NHIS has not published estimates of ambulatory visits.

⁷See Definitions and Methods for an explanation of the difference between the estimate of uninsured person-years, 13.3 percent, and the estimate of uninsured persons, 7.8 percent.

Table 5

**Percent distribution of persons under 65 years of age, by health insurance coverage, age, sex, and race:
United States, 1980**

Age, sex, and race	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
	Population in millions	Percent distribution					
Total	194.0	1.60	7.12	73.09	1.85	3.05	13.30
Age							
Under 4 years	16.1	0.11	17.13	61.35	2.88	4.54	13.98
5-14 years	33.8	0.06	11.86	69.22	3.79	3.35	11.72
15-24 years	40.0	0.36	8.56	67.98	2.75	2.50	17.86
25-34 years	35.2	0.62	4.53	75.71	0.89	2.77	15.47
35-44 years	25.3	1.06	2.98	82.21	0.72	2.23	10.80
45-54 years	22.5	3.07	2.31	80.57	0.42	3.11	10.52
55-64 years	21.0	8.34	3.52	74.68	0.70	3.82	8.94
Sex							
Male	95.3	2.02	5.80	73.55	1.62	2.96	14.06
Female	98.8	1.20	8.39	72.65	2.06	3.13	12.56
Race							
White	165.8	1.54	4.85	76.31	1.51	2.84	12.96
Black	23.6	2.16	22.22	53.35	4.49	2.69	15.10
Other	46.4	1.03	11.51	58.40	(1)	12.33	16.08

¹Relative standard error is more than 50 percent, or sample size is less than 20.

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 18 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons under 65 years of age on July 1, 1980. Estimates are person-years of coverage. Insurance categories are mutually exclusive and completely classify the population under 65 years of age; therefore, the percents sum to 100 in the rows.

The probability of being uninsured was greatest (18 percent) for persons 15-24 years of age. This age group traditionally has the highest unemployment rate and the highest proportion of students and unmarried adults. The proportion of uninsured persons peaks at 15-24 years of age and then declines consistently as age increases.

As shown in Table 5, the distribution of persons among insurance categories varies very little by sex. A slightly higher percentage of females reported Medicaid coverage. This reflects Medicaid eligibility criteria; AFDC benefits often cover single-parent households, which are usually headed by women (Muse and Sawyer, 1982).

The distribution by race, however, indicates notable differences among white people, black people, and others (Table 5). The most notable difference is in the proportion of persons with Medicaid. The proportion of black people with Medicaid coverage (22.2 percent) was almost five times the proportion of white people (4.9 percent) and twice the proportion of all other persons (11.5 percent). Three-fourths of the white population under 65 years of age (76.3 percent) had private insurance, compared with only one-half of the black population (53.4 percent). Private insurance was the most common kind of coverage for all three racial groups. The proportion of black people who were uninsured (15.1 percent) was similar to the proportion of uninsured white people (13.0 percent).

Inpatient utilization—The population distribution and the utilization of inpatient and ambulatory care services by persons under 65 years of age as categorized by insurance coverage are shown in Table 7.

In the group under 65 years of age, persons covered by Medicare were the most intensive users of inpatient services. They reported 489 discharges per 1,000 persons, 5,295 days of care per 1,000 persons, and an average hospital stay of 10.8 days. These high utilization rates are similar to the rates of persons 65 years of age or over. Although Medicare beneficiaries represented only 1.6 percent of the population under 65 years of age, they accounted for 5.2 percent of all discharges and 9.0 percent of all hospital days of care.

Persons with Medicaid were the second most intensive users of inpatient service, with an estimated 278 discharges and 1,510 days of care per 1,000 persons. Their average hospital stay was 5.4 days. The Medicaid group represented 7.1 percent of the population but accounted for 13.2 percent of the discharges and 11.4 percent of hospital days.

The Medicare and Medicaid groups were the two insurance groups in the population under 65 years of age that used a notably greater proportion of inpatient services than the proportion of the population they represented. This reflects Medicare and Medicaid eligibility criteria for

Table 6

**Percent distribution of persons under 65 years of age, by health insurance coverage and age:
United States, 1980**

Age	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Population in millions							
Total	194.0	3.1	13.8	141.8	3.6	5.9	25.8
Percent distribution data							
Under 4 years	8.32	0.59	20.02	6.98	12.97	12.41	8.75
5-14 years	17.44	0.61	29.05	16.52	35.81	19.21	15.37
15-24 years	20.62	4.64	24.79	19.17	30.69	16.89	27.69
25-34 years	18.16	7.07	11.57	18.81	8.72	16.52	21.14
35-44 years	13.04	8.61	5.45	14.67	5.09	9.57	10.59
45-54 years	11.62	22.26	3.78	12.81	2.61	11.87	9.19
55-64 years	10.80	56.22	5.35	11.04	4.11	13.54	7.26

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 19 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons under 65 years of age on July 1, 1980. Estimates are person-years of coverage. The distribution of persons in each insurance category is shown by age; therefore, the percents sum to 100 in the columns.

Table 7

**Selected health service utilization statistics for persons under 65 years of age, by health insurance coverage:
United States, 1980**

Item	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Estimated number of persons in millions ...	194.0	3.1	13.8	141.8	3.6	5.9	25.8
Percent of persons	100.00	1.60	7.12	73.09	1.85	3.05	13.30
Hospital discharges per 1,000 persons	150	489	278	141	196	235	63
Percent of hospital discharges	100.00	5.23	13.20	68.78	2.42	4.77	5.60
Hospital days of care per 1,000 persons	942	5,295	1,510	894	1,038	1,158	317
Percent of hospital days of care	100.00	9.01	11.41	69.33	2.03	3.74	4.47
Average length of stay in days	6.28	10.83	5.43	6.34	5.29	4.93	5.02
Ambulatory visits per person	4.76	13.40	5.74	4.81	5.99	5.72	2.50
Percent of ambulatory visits	100.00	4.52	8.59	73.90	2.33	3.66	7.00
Physician visits per person	3.81	11.23	4.82	3.80	4.71	4.98	2.03
Percent of physician visits	100.00	4.73	9.00	72.93	2.28	3.98	7.08

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 20 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons under 65 years of age on July 1, 1980. Estimates are person-years of coverage. Insurance categories are mutually exclusive and completely classify the population under 65 years of age.

persons under 65 years of age. Medicare beneficiaries in this age group are disabled or suffer from end stage renal disease. Because the NMCUES sample included very few persons with chronic renal disease, these high utilization rates for the Medicare population under 65 years of age are mainly attributable to high rates for the disabled. The Medicaid population includes a high proportion of women in their childbearing years as well as disabled persons eligible for Supplemental Security Income.

Persons with private insurance represented 73.1 percent of the population, by far the largest group, and used 68.8 percent of discharges and 69.3 percent of hospital days. They reported 141 discharges and 894 days of care per 1,000 persons and an average hospital stay of 6.3 days.

Persons with no insurance represented 13.3 percent of the population but used only 5.6 percent of discharges and 4.5 percent of hospital days. They had by far the lowest estimated utilization rates of any insurance category under 65 years of age—63 discharges and 317 days per 1,000 persons and an average length of stay of 5.0 days. NMCUES estimates reported elsewhere indicate that the uninsured are on average comparatively healthy. This may account for lower utilization. However, it is not clear that they are measurably healthier than persons with private insurance, so factors other than health status may account for differences in the use of health services. Moreover, persons without insurance consistently use less inpatient and ambulatory care than persons with insurance within all four subgroups classified by self-perceived health status, i.e., excellent, good, fair, and poor (Garfinkel et al., 1984).

The remaining two categories of insurance coverage shown in Table 7—Medicaid and private insurance, other coverage only—each represented a small proportion of the population: 1.9 and 3.1 percent, respectively. Persons in these categories used corresponding proportions of hospital discharges (2.4 and 4.8 percent) and hospital days (2.0 and 3.7 per 1,000 persons). Both groups had estimated utilization rates that fell between the rates of persons with

Medicaid and persons with private insurance but were not significantly different from either. Persons with Medicaid and private insurance simultaneously had 196 discharges and 1,038 hospital days per 1,000 persons, with an average stay of 5.3 days. Persons with other coverage reported 235 discharges and 1,158 hospital days per 1,000 persons and an average stay of 4.9 days.

With respect to discharges and hospital days, the Medicare, Medicaid, private insurance, and no insurance categories represent four distinct levels of utilization. The differences between these four categories are reflected in the distribution of the persons in each category by the number of hospital discharges that they had in 1980 (Table 8).

The categories that had the highest estimated utilization rates and used a disproportionately large share of hospital days, Medicare and Medicaid (Table 7), also had the highest percentage of persons with one or more hospital discharges (Table 8). It is estimated that 26.8 percent (percent RSE = 10.96) of those with Medicare and 17.8 percent (percent RSE = 8.39) of those with Medicaid had at least one hospital discharge. Only 10.5 percent (percent RSE = 3.59) of the privately insured persons and 7.0 percent (percent RSE = 7.88) of the uninsured persons had one or more discharges. Persons with Medicare, who had significantly higher utilization rates than any other group, were three times more likely to have two or more hospital discharges (12.0 percent) than were persons with Medicaid (3.9 percent), the group with the second highest utilization rates.

Although there is some variation in the estimated average length of stay, only the estimate for Medicare (10.8 days) differs significantly from those for other insurance categories.

Ambulatory visits—Ambulatory visits by insurance category varied in much the same way as hospital services did. The small group of persons who were covered by Medicare had the highest utilization rate among persons under 65 years of age. They reported 13.4 visits per person,

Table 8
Percent distribution of persons under 65 years of age, by health insurance coverage and number of hospital discharges: United States, 1980

Hospital discharges	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Population in millions							
Total.....	194.0	3.1	13.8	141.8	3.6	5.9	25.8
Percent distribution							
None	89.05	73.24	82.22	89.49	88.88	85.27	93.05
1	8.89	14.74	13.90	8.74	8.99	10.86	5.88
2	2.06	12.02	3.89	1.77	2.13	3.87	1.07

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 21 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons under 65 years of age on July 1, 1980. Estimates are person-years of coverage. Insurance categories are mutually exclusive and completely classify the population under 65 years of age. The distribution of persons in each insurance category is shown by number of hospital discharges; therefore, the percents sum to 100 in the columns.

at least twice as many as reported for any other group in this population (Table 7). Although the estimate for the Medicare group is based on a small number of persons, the direction of the difference is consistent with expectations for a group of disabled individuals, and the difference between this estimate and estimates for other insurance groups is significant. Although they represented 1.6 percent of the population, they used 4.5 percent of the ambulatory visits for all persons under 65 years of age. At the other extreme, persons who had no insurance coverage had a lower utilization rate than persons with any kind of insurance had, 2.5 ambulatory visits per person. They represented 13.3 percent of the population and used only about one-half of their proportional share of ambulatory visits, 7 percent (Table 7).

The utilization rates of the other insurance categories were between the extremes of the Medicare and uninsured groups. Individuals covered by Medicaid reported more ambulatory visits per person (5.7) than those covered by private insurance, who reported 4.8 visits per person (Table 7).

Persons under 15 years of age covered by private insurance and those with Medicaid averaged virtually the same number of visits per person (Table 9). As age advanced, both groups used more service. However, for persons 15 years of age or over, the trend of increasing utilization with age seems to be stronger for the Medicaid group. In the older age groups, the Medicaid population had a significantly higher utilization rate. Medicaid eligibility in the older age groups under 65 years of age is based mainly on participation in the Supplemental Security Income, disability, and blindness programs, so higher utilization rates are expected as age increases. However, the accelerated trend for the Medicaid population appears at a young enough age (15 years of age or over) to suggest that some other process is at work as well.

The relationships observed for all ambulatory visits were also found for physician visits (a subset of ambulatory visits). Persons under 65 years of age with Medicare averaged many more physician visits (11.2) than others in their age group did. Persons who had Medicaid coverage reported 4.8 physician visits per person, significantly more than the average for persons covered by private insurance, 3.8 visits (Table 7). Similar rates were observed for persons covered by Medicaid and privately insured individuals under 15 years of age; at this point, rates for the Medicaid group increased faster than rates for privately insured persons did (Table 9). Persons without insurance of any kind reported the fewest physician visits per person (2.0) as well as the fewest ambulatory visits.

The distribution of persons in each insurance category by number of visits during 1980 (Table 10) supports these conclusions about ambulatory service use. More than one-half of the persons with Medicare coverage (the group with the highest utilization rate) had five or more ambulatory visits. This group also contains the smallest proportion of persons without any visits.

Persons with Medicaid, private insurance, and other coverage all have similar distributions by number of am-

bulatory visits: approximately one-fifth had no visits, about one-half had one to four visits, and about one-third had five or more visits. Conversely, one-third of the uninsured persons, who reported the fewest visits per person, had no visits, almost one-half had one to four visits, and almost one-fifth had five or more visits.

The same relationships generally hold for physician visits although, for all insurance classes, the proportion of persons with no physician visits is slightly higher than the proportion of persons with no ambulatory visits. Obviously, some persons had ambulatory visits but never visited a physician.

Persons 65 Years of Age or Over

Insurance coverage—Persons 65 years of age or over are classified by four mutually exclusive combinations of insurance coverage:

- Medicare only.
- Medicare and Medicaid (“crossovers”).
- Medicare and private or other coverage (“Medicare and private insurance”).
- No Medicare.

Estimates of the distribution of persons 65 years of age or over by these insurance categories are presented in Table 11.

More than 96 percent of persons 65 years of age or over were estimated to have Medicare coverage. Most persons in this age group (approximately 63.5 percent) had Medicare in combination with private insurance or some other coverage except Medicaid. Approximately 12.2 percent had Medicare and Medicaid simultaneously, and Medicare was the only source of coverage for 20.5 percent (Table 11).

Less than 4 percent of persons 65 years of age or over did not report Medicare coverage. Approximately 2.6 percent of persons 65 years of age or over reported some other form of coverage. Only 1 percent reported no insurance coverage of any kind. Because neither the uninsured subgroup nor the subgroup with other coverage had enough sample persons to produce reliable estimates, they are combined in a single category in Table 11 and in the following discussion.⁸

When the population 65 years of age or over is divided into two subgroups by age (65-74 and 75 years of age or over), moderate differences in distribution by insurance category are observed. Persons in the older age group were

⁸The few completely uninsured persons 65 years of age or over in the sample produced estimated hospital discharge and ambulatory visit rates that were notably lower than those of insured groups and an average length of hospital stay that was considerably longer. These large differences are not statistically reliable because of the small number of persons in this category in the sample, but they are consistent with the hypothesis that the absence of insurance is associated with reduced access and delayed utilization, resulting in fewer ambulatory visits and hospital discharges, increased severity of illness, and longer hospital stays when they occur.

Table 9

**Estimated number of ambulatory and physician visits per person for persons under 65 years of age,
by health insurance coverage and age: United States, 1980**

Type of visit and age	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Ambulatory visits		Number per person					
Total	4.76	13.40	5.74	4.81	5.99	5.72	2.50
Under 4 years	4.66	(1)	4.97	4.93	5.56	4.25	3.05
5-14 years	3.58	(1)	3.51	3.83	3.18	5.34	1.82
15-24 years	4.02	(1)	5.36	4.15	5.82	5.29	2.27
25-34 years	4.86	(1)	7.19	5.09	8.49	4.82	2.69
35-44 years	5.14	(1)	9.12	4.89	(1)	8.57	2.17
45-54 years	5.75	15.98	14.15	5.40	(1)	5.40	3.26
55-64 years	6.43	10.50	10.03	6.08	12.25	7.48	3.18
Physician visits							
Total	3.81	11.23	4.82	3.80	4.71	4.98	2.03
Under 4 years	4.41	(1)	4.73	4.67	5.09	4.07	2.84
5-14 years	2.81	(1)	2.84	2.95	2.65	4.84	1.47
15-24 years	3.21	(1)	4.49	3.34	3.86	3.96	1.83
25-34 years	3.85	(1)	5.82	4.00	7.56	4.25	2.08
35-44 years	3.92	(1)	7.63	3.67	(1)	6.78	1.76
45-54 years	4.37	12.70	9.65	4.07	(1)	4.69	2.83
55-64 years	5.28	9.34	8.96	4.86	11.86	7.17	2.24

¹Relative standard error is more than 50 percent, or sample size is less than 20.

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 22 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons under 65 years of age on July 1, 1980. Estimates are person-years of coverage. Insurance categories are mutually exclusive and completely classify the population under 65 years of age. Physician visits are a subset of ambulatory visits.

Table 10

**Percent distribution of persons under 65 years of age, by health insurance coverage
and number of ambulatory and physician visits: United States, 1980**

Hospital discharges	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Population in millions							
Total	194.0	3.1	13.8	141.8	3.6	5.9	25.8
Ambulatory visits		Percent distribution					
None	21.68	11.89	18.79	19.99	22.75	18.14	34.35
1-4	48.47	31.53	45.45	49.55	44.19	45.15	47.52
5 or more	29.85	56.58	35.76	30.46	33.06	36.70	18.13
Physician visits							
None	25.52	13.10	21.25	24.06	27.21	20.39	38.26
1-4	49.22	35.39	46.14	50.51	45.67	46.23	46.63
5 or more	25.26	51.51	32.61	25.43	27.12	33.37	15.11

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 23 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons under 65 years of age on July 1, 1980. Estimates are person-years of coverage. Insurance categories are mutually exclusive and completely classify the population under 65 years of age. Physician visits are a subset of ambulatory visits. The distribution of persons in each insurance category is shown by number of ambulatory visits (including physician visits and number of physician visits); therefore, the percents sum to 100 in the columns within each section.

Table 11

**Percent distribution of persons 65 years of age or over,
by health insurance coverage, age, sex, and race: United States, 1980**

Age, sex, and race	Persons 65 years of age or over	Health insurance coverage			
		Medicare only	Medicare and Medicaid	Medicare and private or other	No Medicare
	Population in millions	Percent distribution			
Total	23.8	20.48	12.24	63.51	3.77
Age					
65-74 years	15.3	18.72	9.94	66.95	4.39
75 years or over	8.6	23.61	16.34	57.39	2.66
Sex					
Male	9.8	21.24	9.49	64.51	4.75
Female	14.0	19.94	14.17	62.81	3.08
Race					
White	21.5	19.42	10.58	66.66	3.34
Black	2.0	31.48	27.52	34.33	6.67
Other	0.3	22.06	26.40	37.61	13.93

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 24 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons 65 years of age or over on July 1, 1980. Estimates are person-years of coverage. Insurance categories are mutually exclusive and completely classify the population 65 years of age or over. Physician visits are a subset of ambulatory visits. Insurance categories are mutually exclusive and completely classify the population 65 years of age or over; therefore, the percents sum to 100 in the rows.

slightly more likely than younger persons to have Medicare only (23.6 versus 18.7 percent) and clearly more likely to have Medicare and Medicaid (16.3 versus 9.9 percent). Individuals 65-74 years of age were more likely to have private or other publicly financed supplemental coverage than older individuals were (67.0 versus 57.4 percent). There is no clear explanation for this difference, although one can speculate about several reasons. The group 65-74 years of age might contain a higher proportion of recently retired persons who convert employer-provided insurance to Medicare supplements. They might be wealthier and less likely to be eligible for Medicaid, and they might be better able to meet the eligibility criteria for private insurance on the basis of health status or age. The group 65-74 years of age also contains a higher proportion of men and married couples than the older group does. This would tend to increase their income and their eligibility for continuing health benefits, which sometimes terminate with the death of the previously employed spouse, most likely the male.

It can be seen from Table 11 that women are more likely to have Medicare and Medicaid together than men are—14.2 percent and 9.5 percent, respectively. Men are slightly more likely than women to have every other form of coverage, but differences in the estimates are not significant.

White people are almost twice as likely as black people to have private and other coverage in addition to Medicare (66.7 percent compared with 34.3 percent). Conversely, black people (27.5 percent) are more than twice as likely as white people (10.6 percent) to have Medicaid in addition to Medicare.

Inpatient utilization—For persons 65 years of age or over, Medicare coverage was the norm (96.2 percent of the population) rather than the distinction that it was for persons under 65 years of age. Taken together, all persons with Medicare had higher estimated utilization rates for both hospital discharges and hospital days than did the small number of persons without Medicare (Table 12).

Among persons 65 years of age or over, Medicare/Medicaid crossovers had far more estimated discharges and hospital days than those in any other insurance category—706 discharges and 8,044 hospital days per 1,000 persons. These individuals represented 12.2 percent of the population but used almost twice that proportion of services, 22.7 percent of all discharges and 24.3 percent of all hospital days. They reported the second highest average length of stay (11.4 days) but, as with the population under 65 years of age, estimated length of stay varied little by insurance category. Of all insurance categories in this age group, only Medicare/Medicaid crossovers used a higher proportion of hospital services than the proportion of the population that they represented. Their high utilization reflects the use of disability as a criterion for Medicaid coverage and the fact that individuals often meet Medicaid income criteria while experiencing expensive episodes of severe or extended illness (“the spend-down” phenomenon).

The second most intensive users of inpatient services in this age group were persons with Medicare and private insurance, who reported 370 discharges and 3,734 days of care per 1,000 persons and an average hospital stay of 10.1 days. They represented 63.5 percent of the population 65

Table 12

**Selected health services utilization statistics for persons 65 years of age or over,
by health insurance coverage: United States, 1980**

Characteristic	Persons 65 years of age or over	Health insurance coverage			
		Medicare only	Medicare and Medicaid	Medicare and private or other	No * Medicare
Estimated number of persons in million	23.8	4.9	2.9	15.1	0.9
Percent of persons	100.00	20.48	12.24	63.51	3.77
Hospital discharges per 1,000 persons	381	248	706	370	220
Percent of hospital discharges	100.00	13.32	22.71	61.79	2.18
Hospital days of care per 1,000 persons	4,047	2,968	8,044	3,734	2,202
Percent of hospital days of care	100.00	15.02	24.34	58.59	2.05
Average length of stay in days	10.63	11.99	11.39	10.08	10.01
Ambulatory visits per person	8.46	5.64	11.05	9.12	4.41
Percent of ambulatory visits	100.00	13.64	15.98	68.42	1.96
Physician visits per person	6.65	4.39	9.15	7.05	4.09
Percent of physician visits	100.00	13.51	16.85	67.32	2.32

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 25 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons 65 years of age or over on July 1, 1980. Estimates are person-years of coverage. Insurance categories are mutually exclusive and completely classify the population 65 years of age or over.

years of age or over and used slightly less than that proportion of hospital services, 61.8 percent of hospital discharges and 58.6 percent of hospital days.

Persons with Medicare only, who had 248 discharges and 2,968 days per 1,000 and an average stay of 12.0 days, were the third most intensive users of inpatient services. These persons, representing 20.5 percent of the population, also used less than their share of hospital services, 13.3 percent of discharges and 15.0 percent of days (Table 12).

Persons without Medicare had the lowest estimated inpatient utilization rates in this age group, 220 discharges and 2,202 days per 1,000 persons, with an average hospital stay of 10.0 days. They represented 3.8 percent of the population and used 2.2 percent of the estimated hospital discharges and 2.1 percent of the hospital days. However, inpatient utilization estimates for persons without Medicare are imprecise and must be interpreted with caution.

Of the three inpatient utilization measures shown in Table 12 (discharges, hospital days, and average length of stay), hospital discharges showed the clearest statistical differences between insurance categories. Medicare/Medicaid crossovers had by far the highest discharge rate (706 per 1,000), followed by persons with Medicare and private insurance (370) and those with Medicare only (248). Although persons without Medicare had the lowest estimated discharge rate (220 per 1,000), the estimate is very imprecise and differs significantly only from the estimate for crossovers. Estimates for average length of stay vary among the four insurance categories from 10 to 12 days, but they do not differ from each other significantly. The estimates for hospital days of care do not significantly differ from each other except for the Medicare/Medicaid crossovers, who had a significantly higher rate (8,044 days) than the other three insurance categories had (2,202-3,734 days).

As shown in Table 13, the insurance group with the highest utilization rates, the Medicare/Medicaid crossovers, also had the highest percentage of persons with at least one hospital discharge, 32 percent (percent RSE = 10.38).⁹ There was virtually no variation in the percentage of persons with one hospital stay, but the percentage with two or more stays was significantly higher for the crossovers (16.7 percent) than for any other group.

Ambulatory utilization did not differ by insurance category in the same way as inpatient care did (Table 12). Medicare/Medicaid crossovers reported the highest number of ambulatory visits per person (11.1 visits), but they did not differ significantly from persons with Medicare and private insurance, who reported 9.1 visits per person. Crossovers represented 12.2 percent of the population and used 16.0 percent of the ambulatory visits reported in 1980. Those with Medicare and private insurance represented 63.5 percent of the population and also used slightly more than their share of ambulatory visits, 68.4 percent.

These two groups together include all persons with additional coverage to supplement Medicare and represent three-fourths of the population 65 years of age or over. They had significantly higher use of ambulatory visits than persons with Medicare only (5.6 visits per person) or those without Medicare (4.4 visits). The Medicare only category accounted for 20.5 percent of the population 65 years of age or over but used only 13.6 percent of the ambulatory visits.

⁹This estimate is the composite of two numbers in Table 13: the percent of persons with one hospital discharge (15 percent) and the percent with two or more discharges (17 percent).

Table 13

**Percent distribution of persons 65 years of age or over, by health insurance coverage
and number of hospital discharges: United States, 1980**

Hospital discharges	Persons 65 years of age or over	Health insurance coverage			
		Medicare only	Medicare and Medicaid	Medicare and private or other	No Medicare
Population in millions					
Total	23.8	4.9	2.9	15.1	0.9
Percent distribution					
None	78.18	82.75	68.05	78.06	88.33
1.....	13.90	12.71	15.21	14.26	9.94
2 or more	7.92	4.54	16.74	7.68	(1)

¹Relative standard error is more than 50 percent, or sample size is less than 20.

NOTE: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 26 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons 65 years of age or over on July 1, 1980. Estimates are person-years of coverage. Insurance categories are mutually exclusive and completely classify the population 65 years of age or over. The distribution of persons in each insurance category is shown by number of hospital discharges; therefore, the percents sum to 100 in the columns.

The Medicare/Medicaid crossover population and those with private or other public coverage also had the most persons with five or more ambulatory visits, 64.0 and 53.5 percent, respectively (Table 14). Medicare/Medicaid crossovers were far less likely than other groups to have had no ambulatory visits. Persons without Medicare had the highest estimated proportion without an ambulatory visit (40.4 percent), although they do not appear to differ significantly from those with Medicare only (25.0 percent).

The utilization pattern for physician visits is very similar to the pattern for all ambulatory visits. Again, the two groups of persons with Medicare and supplemental coverage—Medicaid and private or other coverage—had similar utilization rates (9.2 and 7.1 visits per person, respectively) but differed significantly from those with Medicare only (4.4 visits) and those without Medicare (4.1 visits).

Table 14

Percent distribution of persons 65 years of age or over, by health insurance coverage and number of ambulatory and physician visits: United States, 1980

Ambulatory and physician visits	Persons 65 years of age or over	Health insurance coverage			
		Medicare only	Medicare and Medicaid	Medicare and private or other	No Medicare
Population in millions					
Total	23.8	4.9	2.9	15.1	0.9
Number of ambulatory visits		Percent distribution			
None	15.22	25.03	6.54	12.23	40.42
1-4	33.16	33.92	29.45	34.25	22.62
5 or more	51.62	41.05	64.02	53.52	36.96
Number of physician visits					
None	18.24	27.98	8.56	15.64	40.42
1-4	35.68	36.28	33.37	36.68	23.02
5 or more	46.08	35.73	58.07	47.67	36.56

NOTES: The relative standard error (RSE) estimates for the statistics in this table are presented in Table 26 in Appendix IV. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. Population comprises persons 65 years of age or over on July 1, 1980. Estimates are person-years of coverage. Health insurance categories are mutually exclusive and completely classify the population 65 years of age or over. This table presents the distribution of persons in each insurance category by number of ambulatory visits (including physician visits) and number of physician visits; therefore, the percents sum to 100 in the columns within each section.

Discussion

The NMCUES data indicate that Medicare and Medicaid together covered over one-fifth of the civilian noninstitutionalized population of the United States during 1980. Although many people rely on Medicare and Medicaid for health coverage, a far higher percentage of the population (approximately three-fourths) are covered by private health insurance. Private insurance is clearly the principal form of health insurance in the United States. The utilization patterns of persons covered by private insurance dominate the estimates of utilization for the populations under 65 years of age and 65 years of age or over. However, the Medicare and Medicaid populations have consistently higher utilization rates than the remainder of the U.S. population have. Consequently, they use a disproportionately high share of health services. These findings are expected, because the intent of Medicare and Medicaid is to assist those persons—the elderly, poor, and disabled—who are most likely to need health services and least able to afford them.

The population under 65 years of age included four groups of persons with distinct patterns of utilization. The small number of persons with Medicare, almost all disabled, had the highest inpatient and ambulatory utilization rates and used a disproportionately high share of all inpatient and ambulatory services delivered. Persons covered by Medicaid (7 percent of the population under 65 years of age) had the next highest utilization of inpatient and ambulatory services. They were followed by the privately insured group, representing 73 percent of the population under 65 years of age, and the uninsured, who accounted for 13 percent. (The estimate of 13.3 percent person-years uninsured in the group under 65 years contrasts with the estimate of 7.8 percent of persons uninsured during the entire survey year.) The uninsured were the least frequent users of service by all measures.

More than 96 percent of persons 65 years of age or over had Medicare coverage. Those who did not, whether they had other coverage or no insurance at all, represented such a small proportion of the population that it is difficult to draw reliable conclusions about them. Persons without Medicare in this age group exhibited generally unremarkable utilization rates except for the very few persons without any insurance, who had very low, but statistically unreliable, utilization estimates.

Of elderly persons with Medicare, the highest inpatient and ambulatory utilization rates were reported by those who had Medicare and Medicaid together (12 percent of

the elderly population). Persons with private or other publicly financed supplements to Medicare (64 percent) had the second highest use of services, followed by those who had Medicare as their only coverage (20 percent of the elderly population).

In both age groups, with minor exceptions, insurance categories with high inpatient discharge rates also had high ambulatory utilization rates, and categories with low inpatient rates had low ambulatory rates.

In addition to confirming the belief that Medicare and Medicaid beneficiaries have comparatively high inpatient and ambulatory utilization rates, the NMCUES data support the notion that persons without insurance coverage use services less than others do.

The data for persons under 65 years of age exhibit a positive relationship between insurance coverage in general and the use of health services. Persons without insurance had much lower use rates than persons who were insured had. Persons with private insurance had slightly lower use rates than persons with Medicaid coverage, who are typically responsible for a smaller proportion of their medical expenses than privately insured persons are. Although there is evidence in the literature that the availability of insurance coverage encourages utilization by lowering the effective price at the time of service, clearly other factors, not apparent in the two-way crosstabulations used in this report, are involved. Persons eligible for Medicaid are slightly less healthy than other members of the population (Garfinkel et al., 1984). Thus, their higher utilization is at least partly explained by greater need for care.

Similarly, persons without insurance appear to be comparatively healthy and slightly more likely to be in the adolescent and young adult age groups that typically use little care. These persons may not have insurance because they are full-time students, unemployed, or employed in jobs that do not offer insurance benefits. Thus, they may be unable to obtain group health insurance and may find individual health insurance policies too expensive. Alternatively, persons without insurance may see little need for it, because they do not anticipate significant medical expenses. The age and health status characteristics of the uninsured support these explanations to some extent, but they do not differ enough from the characteristics of the privately insured to completely account for the substantial difference in utilization. Moreover, uninsured people had the lowest rates of ambulatory and inpatient service use

within each class of perceived health status (excellent, good, fair, and poor).

At least on a preliminary basis, it appears that the presence or absence of insurance has some effect on the use of health services beyond the influence of age and health status. However, the results at this level of analysis are insufficient to demonstrate the extent of the relationship and its independence from other factors that have not been considered.

Beyond this issue is the question of which level of care is appropriate. The NMCUES data suggest that the privately insured and uninsured have similar levels of health

and that the difference in utilization is attributable to insurance. In that case, which level of hospital utilization is most desirable—the 63 discharges per 1,000 uninsured persons or the 141 per 1,000 privately insured?

The shift from access to cost containment as the major focus of public policy in health suggests that we assume, at least for the moment, that lower use of services is more desirable. Nevertheless, as several writers on policy (Lubitz and Deacon, 1982; Pauly and Langwell, 1983) point out, the next important step in research of this type is consideration of which level of care is appropriate.

References

- Andersen, R., Lion, J., and Anderson, O.W.: *Two Decades of Health Services: Social Survey Trends in Use and Expenditures*. Cambridge, Mass. Ballinger Publishing Company, 1976.
- Cannel, C.F., Marquis, K.H., and Laurent, A.: A summary of studies of interviewing methodology. *Vital and Health Statistics*. Series 2-No. 69. National Center for Health Statistics, Public Health Service. Washington. U.S. Government Printing Office, 1977.
- Division of Health Interview Statistics, National Center for Health Statistics: Unpublished data from the 1980 National Health Interview Survey, July 1982.
- Garfinkel, S.A., Wheelless, S.C., and Corder, L.S.: Characteristics of Health Status, Utilization, and Expenditures for the Civilian Noninstitutionalized Population of the United States, 1980. Draft report from the National Medical Care Utilization and Expenditure Survey. Research Triangle Park, N.C. Research Triangle Institute, 1984.
- Health Care Financing Administration: Unpublished data, 1980.
- Jack, S.S.: Current estimates from the National Health Interview Survey, United States, 1980. *Vital and Health Statistics*. Series 10-No. 139. DHHS Pub. No. (PHS) 82-1567. National Center for Health Statistics, Public Health Service. Washington. U.S. Government Printing Office, Dec. 1981.
- Kasper, J.A., et al.: Expenditures for Personal Health Services: Findings from the 1977 National Medical Care Expenditure Survey. Paper presented at the 108th Annual Meeting of the American Public Health Association. Detroit, Oct. 21, 1980.
- Lubitz, J., and Deacon, R.: The rise in the incidence of hospitalizations for the aged, 1967 to 1979. *Health Care Financing Review*. Vol. 3, No. 3. HCFA Pub. No. 03141. Office of Research, Demonstrations, and Statistics, Health Care Financing Administration. Washington. U.S. Government Printing Office, March 1982.
- Muse, D.N., and Sawyer, D.: *The Medicare and Medicaid Data Book, 1981*. HCFA Pub. No. 03128. Office of Research, Demonstrations, and Statistics, Health Care Financing Administration. Baltimore, Apr. 1982.
- Pauly, M.V., and Langwell, K.M.: Research on competition in the market for health services, problems and prospects. *Inquiry* 20(2):142-161, Summer 1983.
- Wilder, M.H.: Current estimates from the Health Interview Survey, United States, 1970. *Vital and Health Statistics*. Series 10-No. 72. DHEW Pub. No. (HRA) 74-1054. National Center for Health Statistics, Public Health Service. Washington. U.S. Government Printing Office, Aug. 1973.

Appendixes

I.	Definition of Terms
II.	Statistical Design
III.	Weighting and Imputation
	Weights
	Imputation
IV.	Reliability of Estimates

Appendix I.

Definition of Terms

Persons—Unless otherwise noted, use of the term “persons” in this report (as in “per person,” “number of persons,” or “percent of persons”) actually refers to “person-years.” “Persons” is used because it is less cumbersome and because it ultimately refers to persons weighted by the proportion of the year that they fell into the category being described.

Data on utilization, expenditures, and insurance coverage were collected for five periods during the survey year. Individuals may fall into a different insurance coverage category in each round. Because any one person may have utilization in more than one coverage category, it is desirable to distribute or weight that person to each category according to the proportion of the survey year during which he or she fell into the category.

Insurance—“Insurance” is used interchangeably with “coverage.” It refers to any entity other than the provider, consumer, or consumer’s family that assumes at least part of the financial responsibility for care.

Insurance categories—Individuals can have more than one kind of insurance at a time. Therefore, it is possible to classify individuals by mutually exclusive or nonexclusive insurance categories. The use of mutually exclusive categories means that one individual can fall into only one category of insurance coverage during a specific time period. Use of nonexclusive categories means that each person is counted in as many categories as he or she falls into during the time period; e.g., a person with two different kinds of insurance is counted twice—once in each category. Mutually exclusive categories are used for all the tables in this report except Table 1.

Many different kinds of insurance and, consequently, many possible combinations exist. A three-step process was employed to avoid creating many categories with few individuals in each.

In the first step, the various kinds of coverage were reduced to four: Medicare, Medicaid, private, and other. Private insurance consists of commercial insurance; Blue Cross and Blue Shield; health maintenance organizations; other prepaid health plans; plans of unions, companies, or schools that offer some form of coverage other than employee or student clinics; and health or insurance plans for which names were not specified. Other coverage includes the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS); the Civilian Health and Medical Program of the Veterans’ Administration (CHAMPVA); Indian Health Service; and coverage and

services provided by units of State and local governments, Veterans’ Administration, the military, the Federal Government, and public assistance programs.

In the second step, the 4 kinds of coverage were cross-classified into 16 possible combinations. In the last step, the 16 combinations were reduced by merging them in a hierarchical manner. This last step was performed separately for the two subpopulations—under 65 years of age and 65 years of age or over—so two different hierarchical insurance variables are used in this report. The mutually exclusive coverage categories used in this report are:

- *Medicare (under 65 years of age)*—This category includes persons who report Medicare coverage regardless of any other coverage. It includes persons who have only Medicare and persons who have Medicare in combination with any number or kind of other plans, including private insurance, Medicaid, and other publicly financed programs.
- *Medicaid, no private health insurance (under 65 years of age)*—This category includes anyone reporting Medicaid alone or Medicaid in combination with another publicly financed program. Persons who have Medicaid and Medicare (who are already classified as Medicare) and persons who have Medicaid and private coverage (which is a distinct classification) are excluded.
- *Private health insurance, no Medicaid (under 65 years of age)*—This category includes persons who reported private insurance as their only coverage, without regard to the number of private insurance plans, and persons who reported private insurance in combination with a publicly financed program other than Medicare or Medicaid. Persons with Medicare and private insurance are classified as Medicare, and those with Medicaid and private insurance are in another distinct category.
- *Medicaid and private health insurance (under 65 years of age)*—Persons in this category have Medicaid and private insurance simultaneously. They may also have coverage under a publicly financed program other than Medicare in addition to their Medicaid and private insurance coverage.
- *Other coverage only (under 65 years of age)*—This category includes persons who report only other publicly financed programs as a source of health care coverage. Examples of these programs are listed earlier

in this section. This category also includes State and local government employees who name the governmental entity for which they work as their source of coverage or payment. Persons with Medicare, Medicaid, and private insurance are excluded from this category.

- *No insurance (under 65 years of age)*—Persons reporting no third-party coverage for medical care and no third-party sources of payment for medical care are in this category.
- *Medicare only (65 years of age or over)*—This category includes persons who report Medicare as their only coverage or third-party payment source.
- *Medicare and Medicaid (65 years of age or over)*—Persons in this category report Medicare and Medicaid simultaneously. They may report private or other coverage in addition to Medicare and Medicaid.
- *Medicare and private or other coverage (65 years of age or over)*—Persons in this category report Medicare and at least one of the private and other types of coverage described earlier. This category excludes any persons reporting Medicaid.
- *No Medicare (65 years of age or over)*—This group includes: (1) persons who do not have Medicare but have any other kind of coverage, including private insurance, Medicaid, or other coverage; and (2) persons without any kind of insurance coverage. It is desirable to distinguish these two groups from each other on theoretical grounds, but the NMCUES sample produced too few individuals of either kind to justify two categories. Hence, they have been combined into a category of persons without Medicare regardless of their insurance coverage status.

Hospital discharges—This includes all discharges from short-stay hospitals during 1980. Visits to emergency or hospital outpatient departments are not considered hospital discharges.

Hospital days of care—This term is a measure of the number of nights spent in short-stay acute-care hospitals.

Ambulatory medical visits—Ambulatory medical visits consist of all visits for health care from a variety of health care providers, including physicians, nurses, physician assistants, chiropractors, optometrists, podiatrists, therapists, and psychologists. Visits at the patient's home, the practitioner's office, hospital emergency department, and hospital outpatient department are considered ambulatory medical visits, but telephone contacts and visits to hospital inpatients are not. Visits to dentists are also excluded.

Physician visits—Physician visits are those ambulatory medical visits during which care was received from a doctor of medicine or osteopathy or from a person supervised by a doctor of medicine or osteopathy.

Age—Persons are classified by their age on July 1, 1980.

Sex—The gender of the person was recorded as observed by the interviewer.

Race—Each person was classified as "white," "black," or "other." The "other" race category includes American Indian, Alaskan Native, Asian, and Pacific Islander. The race of persons 17 years of age or older was reported by the household respondent. The race of children under 17 years of age was derived from the race of the wife of the head of household (if there was one) or the head of household.

Appendix II. Statistical Design

The National Medical Care Utilization and Expenditure Survey comprised two separate sample survey components that used identical data collection instruments and methods. These two survey components are the national household survey (HHS) and the State Medicaid household survey (SMHS). HHS employed a multistage probability sample of the civilian noninstitutionalized population of the United States. SMHS employed multistage probability samples of households in the States of California, Michigan, New York, and Texas that contained a Medicaid-eligible person.

The HHS sample was obtained by combining the national general-purpose area samples of the Research Triangle Institute and the National Opinion Research Center. The structure of these samples is similar and will be described in aggregate. The first-stage sample consists of 135 primary sampling units (covering 108 separate geographic areas) that are counties, parts of counties, or groups of contiguous counties. The second-stage sample consists of 809 sampling units that are U.S. Bureau of the Census enumeration districts or block groups. The third-

stage sample comprises 809 smaller area segments. Ultimately, a sample of approximately 6,600 households responded to the fourth-stage sample. This yielded a probability sample of about 17,900 people.

To provide a coordinated set of samples for SMHS, clustered list samples of Medicaid families or "cases" were drawn from the November 1979 Medicaid eligibility files for each of the four States. The samples were clustered using the five-digit ZIP codes contained in the address field of the eligibility records. A total of 100 primary ZIP-code area sampling units were selected in each State. A sample of approximately 4,900 Medicaid households containing about 13,700 people responded. Individual State samples were balanced (stratified proportionately) in their distribution over the categories of eligibility (Aid to Families With Dependent Children; Aged; Blind and Disabled; and State Only¹⁰).

¹⁰Texas did not have a State-Only program during 1980.

Appendix III.

Weighting and Imputation

Weights

The individuals who were eligible for inclusion in the NMCUES samples were the civilian noninstitutionalized residents of the initial sample of housing units or Medicaid cases. Data from these initially eligible ("key") individuals were to be collected only for the time periods in which they were eligible; that is, data were collected for the period of time in 1980 during which they were civilian and noninstitutionalized residents of the United States. Children born to key sample individuals during 1980 were eligible from their time of birth, and eligible individuals who died were considered eligible until their time of death. Further, individuals who were ineligible for inclusion in NMCUES in the first round but later returned to a sample household from the military, an institution, or foreign residency were included as key individuals from the date of their return. Sample persons were designated as survey respondents if they provided data for one-third or more of the days for which they were survey eligible during 1980.

For the interpretation of NMCUES data, adjusted sampling weights are needed to reflect the complex design used in data collection. These weights may be viewed as inflation factors to account for the number of persons in the target population that the associated sample persons represent. The weights have been adjusted for the potential biasing effects of systematic nonsampling errors related to total survey nonresponse and sampling frame undercoverage. Nonresponse occurs when an individual refuses to participate in the survey. Undercoverage occurs when the units comprising the sampling frame do not provide access to all members of the eligible target population.

The NMCUES national household survey (HHS) sample initially identified a set of sample households. Data collection was then attempted for all eligible persons within each sample household. Thus, undercoverage and nonresponse can occur for an entire household or for individuals within a household. For this reason, a two-step weight adjustment process was adopted. The first step resulted in adjusted household-level weights. The person-level weights were then derived from adjusted household weights.

The initial weight associated with a household was the inverse of its sample selection probability. The weights of responding households were then ratio-adjusted to 1980 Current Population Survey estimates of the number of eligible households in the United States for subgroups defined by race, sex, and age of the head of household and

by the number of persons in the household. This provided a combined adjustment for both nonresponse and undercoverage of households.

Because all eligible persons in a household were taken into the sample, the adjusted weight for a sample person's household provided the initial person-level weight for an individual. The initial weights of responding persons were ratio-adjusted to estimates of the size of the eligible population in 1980 that were obtained from the U.S. Bureau of the Census for subgroups defined by age, race, and sex.¹¹

The State Medicaid household survey (SMHS) analysis weights were developed in three steps. First, a responding Medicaid case was assigned a Medicaid case weight, the inverse of its selection probability. The weights of responding Medicaid cases were then ratio-adjusted to counts of the number of eligible cases on the sampling frame. Second, Medicaid household weights were generated from the case weights. Each Medicaid household may be associated with one or more Medicaid cases, so the household weights were adjusted to accurately reflect each household's probability of selection. Third, the final person-level weights were formed by associating the appropriate adjusted household weight with each responding person, the ratio-adjusting the person-level weights to November 1979 Medicaid eligibility file counts of case members.

Imputation

During the course of the 1-year data collection period, some attrition of the initial sample took place. This occurred when sample members who responded to the first round of interviewing did not participate in subsequent rounds. When an individual failed to respond for the entire year, health care utilization data are missing for the nonresponding time period. To compensate for this source of bias, data were imputed to part-year respondents for the portion of the year that they did not respond. The data were taken from full-year respondents with similar characteristics. Overall, attrition affected about 5 percent of the originally responding sample members.

¹¹At the time that this report was produced, estimates of the size of the eligible population subgroups based on the 1980 Decennial Census were not available. The best population size estimates available from the U.S. Bureau of the Census were used to produce this report.

Missing questionnaire items were imputed either logically or statistically. Logical imputation was used whenever other data gave a good indication of the appropriate response. For example, missing racial classifications were inferred from those of other household members. Statistical imputation was used to complete missing items that could not be logically inferred. Generally, an item was statistically imputed by assigning a value from a responding person with characteristics similar to those of the non-respondent. Table 15 presents the percent of imputed data for many important variables.

Information was collected on 12 different sources of income (employment, veterans' payments, unemployment, workers' compensation, Supplemental Security Income, social security, public assistance, pension, cash payments, interest, dividends, and other). Total income was defined as the sum of the 12 sources. Employment income was logically imputed for 2.1 percent and statistically imputed for 9.4 percent of the sample members. All 12 income sources were reported by 63.8 percent of the sample members, and 87.4 percent had no more than one source imputed.

Disability days and employment history were collected separately for each round of interviewing. These variables were imputed only for the portion of the year for which they were missing. Table 16 presents the percent of sample persons with complete data for the year for these variables.

Health insurance is used in this report as a generic term for all types of insurance, prepayment, and tax-supported programs in which a private or public program receives prepayment or reimburses providers for services delivered to persons covered by the program. Data concerning health insurance coverage were collected in each of five data collection rounds in several ways. Respondents were asked if they were covered at the time of the interview by each of several kinds of insurance. Source of payment

for each reported use of service were also collected. Lastly, information on employment, income, age, and participation in income redistribution programs, which are all highly related to insurance coverage, was collected and used to infer some kinds of coverage.

Four categories of coverage were created from the NMCUES data. These are:

1. Private health insurance.
 - Commercial and independent insurers.
 - Blue Cross/Blue Shield.
 - Health maintenance organization.
 - Other prepaid health plans.
 - Union name.
 - School name.
 - Insurance, not otherwise specified.
2. Medicare.
3. Medicaid.
4. Other public programs.
 - CHAMPUS/CHAMPVA.
 - Veterans' Administration.
 - Indian Health Service.
 - Federal Government.
 - Military.
 - State/local government.
 - Public assistance, not otherwise specified.

Respondents were initially classified as being covered or not covered on an interview date (or on December 31, 1980) by each of the four classes of insurance listed earlier, based on their answers to questions concerning their coverage on the date of interview. The insurance coverage of a respondent on the date of interview was then ascribed to the entire reference period for the interview. The reference period extended from the date of the respondent's previous interview (or January 1, 1980) to the date of the current interview.

Table 15

**Percent of data imputed for several variables:
National household survey and State Medicaid
household survey components of National Medical
Care Utilization and Expenditure Survey**

Variable	Percent imputed
Age	0.2
Sex	0.5
Race	22.3
Hispanic origin	22.5
Education	1.5
Functional limitation source	5.8
Perceived health status	1.4
Nights in hospital	6.7
Charges (national household survey only)	
Emergency room	39.0
Outpatient department	51.0
Physician	22.0
Hospital inpatient	37.0
Physician inpatient	24.0
Dental	14.0
Prescribed medicine and other medical expenses	20.0

Table 16

**Percent of persons with complete data for
disability days and employment variables:
National household survey and State Medicaid
household survey components of National Medical
Care Utilization and Expenditure Survey**

Variable	Percent with complete data
Employment	
Total weeks worked	
Main job	87.4
Second job	82.4
Hours worked per week	
Main job	86.0
Second job	81.5
Disability days	
Bed days	83.9
Cut down days	83.2
Work loss days	84.4
Work loss days spent in bed	81.4

The following edits and logical imputations were then completed to produce the final health insurance coverage variables:

1. Any person who was 64 years of age on January 1, 1980, and who reported being covered by Medicare on a particular date was considered to be covered by Medicare from that date to the end of 1980.
2. Any person who was 65 years of age or over on January 1, 1980, and ever reported being covered by Medicare during 1980 was assigned Medicare coverage for the entire year.
3. Any person who reported Supplemental Security Income, Aid to Families With Dependent Children (AFDC), or some other form of State or local welfare as a source of income for 9 months or more during 1980 was assigned Medicaid coverage for the entire year.
4. Any person who was not over 21 years of age and living with a person 22 years of age or over and who reported AFDC or some other form of State or local welfare as a source of income for 9 months or more during 1980 was assigned Medicaid coverage for the entire year.
5. Any person who reported being covered by Medicaid at two interviews immediately bracketing an intervening interview at which Medicaid was not reported was considered to have been covered by Medicaid during the reference period of the intervening interview.
6. Any person who reported one of the four categories of insurance as a source of payment for a utilization was considered covered by that type of insurance for the entire reference period of the interview during which the utilization was reported.

Appendix IV.

Reliability of Estimates

The estimates presented in this report are based on a probability sample of the population rather than the entire population and hence are subject to sampling variability. Sampling variability occurs because observations are made only on a sample, not on the entire population. The particular sample that was used in this survey is one of a large number of possible samples that could have been selected using the same sample design. Estimates derived from different samples would differ from each other.

The standard error of a survey estimate is a measure of the variation among the estimates from all possible surveys. Thus, the standard error is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. The relative standard error (RSE) is defined as the standard error of the estimate divided by the absolute value of the quantity being estimated.

Tables of estimated RSE's for estimates presented in this report are provided in Tables 17 through 27. The estimated standard error of a sample statistic can be found by multiplying the estimated RSE by the absolute value of the statistic.

The sample estimate and an estimate of its standard error together permit the construction of an interval estimate with prescribed confidence that the interval includes the average result of all possible samples (for a given sample design). These interval estimates are such that:

1. In approximately two-thirds of the possible samples, an interval from one standard error below the estimate to one standard error above the estimate would include the average value of all possible samples. Such an interval is called a 67-percent confidence interval.
2. Approximately nineteen-twentieths of the possible sample intervals from two standard errors below the estimate to two standard errors above the estimate

would include the average value of all possible samples. Such an interval is called a 95-percent confidence interval.

3. For almost all the possible samples, the interval from three standard errors below the estimate to three standard errors above the estimate would include the average value of all possible samples.

Estimated RSE's have been provided since they are free of the effects of scale and are more readily interpretable. For example, an estimate of \$10 per visit with a standard error of 10 would have an RSE of 1.0 and would generally be regarded as being unreliably estimated. On the other hand, an estimate of \$100 per visit, also with a standard error of 10, would have an RSE of 0.10 and would usually be considered relatively reliable.

In general, estimates for small subgroups tend to be relatively unreliable. However, the magnitude of the sampling error that is tolerable depends on the conclusions being drawn. The precision of a statistic with an RSE of 5 percent or less is usually considered to be excellent; 6-15 percent, good; 16-25 percent, fair; and more than 25 percent, poor. The reader should be aware that some estimates in this report may have percent RSE's in excess of 25 percent. Statistics with RSE's this large are generally viewed as not precisely estimated and should be interpreted cautiously. All estimates with a percent RSE greater than 50 percent or based on a sample size of less than 20 have been suppressed from this report.

The standard error of the difference between statistics can be approximated by the square root of the sum of squares of the standard error estimates for the two statistics. This approximation ignores the covariance between the two statistics. The approximation will be conservative (too large) for positively correlated statistics and liberal (too small) for negatively correlated statistics.

Table 17

Percent relative standard errors for Table 1

Age and type of estimate	All persons	Health insurance coverage				
		Medicare	Medicaid	Private insurance	Other	Uninsured
Total		Population in millions				
Persons ever covered	2.44	4.48	5.50	2.51	7.32	6.76
Person-years of coverage	2.44	4.61	5.68	2.51	9.13	5.48
Under 65 years of age						
Persons ever covered	2.52	6.46	5.65	2.69	7.78	6.76
Person-years of coverage	2.52	7.03	5.86	2.68	9.59	5.48
65 years of age or over						
Persons ever covered	4.68	4.92	8.62	4.77	10.78	(1)
Person-years of coverage	4.68	4.93	9.02	4.90	12.56	23.93
Total		Percent				
Persons ever covered	0.00	3.95	4.93	0.92	6.62	5.82
Person-years of coverage	0.00	4.00	5.27	1.12	8.50	4.32
Under 65 years of age						
Persons ever covered	0.00	6.64	5.14	0.94	7.03	5.92
Person-years of coverage	0.00	6.94	5.54	1.12	8.90	4.38
65 years of age or over						
Persons ever covered	0.00	0.55	7.89	2.56	10.31	28.46
Person-years of coverage	0.00	0.56	7.96	2.79	12.61	23.80

¹Relative standard error is more than 50 percent, or sample size is less than 20.

NOTE: The relative standard errors (RSE's) for values in the footnote to Table 1 are as follows: 40.9 million (percent RSE 5.24), 18.8 percent (percent RSE 3.92); 40.6 million (percent RSE 5.25), 20.9 percent (percent RSE 3.94); and 340,226 (percent RSE 22.11), 1.4 percent (percent RSE 22.06).

Table 18

Percent relative standard errors for Table 5

Age, sex, and race	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Total.....	2.52	6.94	6.16	1.18	8.31	13.54	4.38
Age							
Under 4 years	4.34	45.12	7.51	2.83	12.20	21.83	8.69
5-14 years	3.92	42.32	8.28	1.99	10.25	21.35	8.22
15-24 years	3.05	25.92	7.94	1.64	12.98	17.03	4.59
25-34 years	3.74	29.62	10.06	1.47	16.36	19.89	5.13
35-44 years	3.91	21.00	11.92	1.39	18.89	17.85	9.08
45-54 years	3.74	14.93	17.28	1.58	28.33	16.40	8.81
55-64 years	3.47	9.04	14.59	1.66	29.40	13.13	8.24
Sex							
Male	2.58	8.76	6.79	1.34	10.84	12.61	4.62
Female	2.67	9.63	6.55	1.19	8.82	15.13	4.75
Race							
White	2.84	7.53	7.43	1.15	8.56	14.35	4.85
Black	7.80	16.68	11.93	5.77	17.53	24.30	7.37
Other	11.43	47.02	17.20	7.62	(1)	22.21	21.87

¹Relative standard error is more than 50 percent, or sample size is less than 20.

Table 19

Percent relative standard errors for Table 6

Age	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Total.....	2.52	7.03	6.24	2.68	9.08	13.90	5.48
Under 4 years	3.36	45.05	6.80	3.64	12.14	14.68	7.02
5-14 years	2.26	42.57	4.98	2.52	6.73	13.48	6.47
15-24 years	1.83	24.39	5.77	2.13	7.99	11.00	3.76
25-34 years	2.75	28.61	9.28	3.03	15.13	11.90	4.57
35-44 years	2.87	20.44	10.90	3.07	18.55	14.07	7.06
45-54 years	2.98	13.39	15.82	3.21	27.51	13.62	8.41
55-64 years	3.45	6.87	13.87	3.73	27.72	13.93	8.45

Table 20

Percent relative standard errors for Table 7

Item	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Estimated number of persons in millions . . .	2.52	7.03	6.24	2.68	9.08	13.90	5.48
Percent of persons	—	6.94	6.16	1.18	8.31	13.54	4.38
Hospital discharges per 1,000 persons	3.51	12.79	10.24	3.89	20.79	14.42	9.30
Percent of hospital discharges	—	14.48	9.41	2.62	20.05	18.78	9.29
Hospital days of care per 1,000 persons	6.84	17.08	13.13	8.94	25.37	15.63	12.00
Percent of hospital days of care	—	19.23	13.96	3.50	24.71	20.59	12.22
Average length of stay in days	5.73	9.73	9.16	8.02	17.31	10.95	7.67
Ambulatory visits per person	2.06	13.21	7.14	1.99	11.30	8.79	3.69
Percent of ambulatory visits	—	14.87	7.40	1.53	11.86	15.13	5.42
Physician visits per person	2.03	13.52	6.02	2.10	8.82	10.05	3.74
Percent of physician visits	—	14.37	6.87	1.58	10.21	16.33	5.22

Table 21

Percent relative standard errors for Table 8

Hospital discharges	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Total	2.52	7.03	6.24	2.68	9.08	13.90	5.48
None	0.39	4.00	1.81	0.42	1.49	1.68	0.59
1	3.29	16.99	9.03	3.61	14.63	10.15	8.78
2	6.70	16.24	18.85	6.93	33.09	24.89	17.44

Table 22

Percent relative standard errors for Table 9

Type of visit and age	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Ambulatory visits							
Total.....	2.06	13.21	7.14	1.99	11.30	8.79	3.69
Under 4 years	2.62	(1)	6.46	3.27	10.09	10.40	6.44
5-14 years	5.30	(1)	10.98	6.34	15.92	23.17	13.97
15-24 years	3.44	(1)	15.17	3.57	28.03	19.28	6.34
25-34 years	3.53	(1)	13.12	3.84	16.33	12.81	11.32
35-44 years	5.80	(1)	12.46	5.57	(1)	20.98	11.94
45-54 years	4.86	27.51	25.14	4.76	(1)	14.45	10.68
55-64 years	4.16	12.34	16.80	4.22	37.35	21.01	15.65
Physician visits							
Total.....	2.03	13.52	6.02	2.10	8.82	10.05	3.74
Under 4 years	2.57	(1)	6.57	3.18	10.37	10.93	6.58
5-14 years	4.71	(1)	9.47	5.13	17.96	25.92	14.05
15-24 years	3.38	(1)	14.58	3.64	13.67	18.96	6.07
25-34 years	3.11	(1)	12.24	3.59	15.80	12.74	8.28
35-44 years	6.08	(1)	10.72	5.50	(1)	20.97	11.78
45-54 years	3.98	23.58	15.12	4.38	(1)	14.30	10.46
55-64 years	4.23	12.24	17.68	4.08	38.28	21.87	13.16

¹Relative standard error is more than 50 percent, or sample size is less than 20.

Table 23

Percent relative standard errors for Table 10

Ambulatory and physician visits	Persons under 65 years of age	Health insurance coverage					
		All Medicare	Medicaid, no private insurance	Private insurance, no Medicaid	Medicaid and private insurance	Other coverage only	No insurance
Ambulatory visits							
Total persons	2.52	7.03	6.24	2.68	9.08	13.90	5.48
None	2.26	14.92	9.26	2.21	13.91	14.19	3.20
1-4	0.87	7.36	3.92	1.06	5.45	5.56	2.50
5 or more	1.86	5.03	5.61	1.79	7.04	10.21	4.41
Physician visits							
Total persons	2.52	7.03	6.24	2.68	9.08	13.90	5.48
None	1.92	14.34	8.00	1.99	11.54	13.36	2.76
1-4	0.95	7.23	3.59	1.08	5.67	5.52	2.43
5 or more	2.16	5.83	5.38	2.30	7.59	10.82	4.85

Table 24

Percent relative standard errors for Table 11

Age, sex, and race	Persons 65 years of age or over	Health insurance coverage			
		Medicare only	Medicare and Medicaid	Medicare and private or other	No Medicare
Total	4.68	6.10	8.29	2.82	14.37
Age					
65-74 years	4.99	7.85	10.80	3.04	16.52
75 years or over	6.37	7.57	9.83	3.64	26.56
Sex					
Male	5.48	6.82	12.53	2.89	17.99
Female	5.05	7.39	7.94	3.26	14.94
Race					
White	4.88	6.88	9.65	2.84	15.07
Black	13.85	13.13	14.03	13.20	43.81
Other	14.82	32.52	35.63	24.02	48.01

Table 25

Percent relative standard errors for Table 12

Characteristic	Persons 65 years of age or over	Health insurance coverage			
		Medicare only	Medicare and Medicaid	Medicare and private or other	No Medicare
Estimated number of persons in millions	4.68	8.78	9.40	5.26	13.25
Percent of persons	—	6.10	8.29	2.82	14.37
Hospital discharges per 1,000 persons	6.27	12.81	13.22	7.07	40.11
Percent of hospital discharges	—	12.71	11.48	5.00	43.04
Hospital days of care per 1,000 persons	8.52	19.79	17.03	9.48	42.47
Percent of hospital days of care	—	18.05	13.65	6.81	45.62
Average length of stay in days	4.61	13.49	10.09	5.77	16.03
Ambulatory visits per person	4.85	8.00	8.97	5.48	16.84
Percent of ambulatory visits	—	9.78	11.30	3.26	23.39
Physician visits per person	4.61	6.12	9.30	5.26	17.09
Percent of physician visits	—	9.01	11.36	3.43	24.22

Table 26

Percent relative standard errors for Table 13

Hospital discharges	Persons 65 years of age or over	Health insurance coverage			
		Medicare only	Medicare and Medicaid	Medicare and private or other	No Medicare
Total	4.68	8.78	9.40	5.26	13.25
None	1.18	2.10	4.87	1.60	3.71
1	4.92	11.50	14.37	7.16	32.59
2 or more	8.82	22.36	13.90	10.74	(¹)

¹Relative standard error is more than 50 percent, or sample size is less than 20.

Table 27

Percent relative standard errors for Table 14

Ambulatory and physician visits	Persons 65 years of age or over	Health insurance coverage			
		Medicare only	Medicare and Medicaid	Medicare and private or other	No Medicare
Total	4.68	8.78	9.40	5.26	13.25
Number of ambulatory visits					
None	6.83	8.71	19.07	8.84	16.34
1-4	4.27	7.58	12.86	4.65	18.37
5 or more	2.74	5.89	5.89	3.03	18.07
Number of physician visits					
None	5.92	7.53	20.13	7.40	16.34
1-4	4.24	7.46	11.96	4.64	18.09
5 or more	3.30	6.99	6.82	3.73	18.28

Public Use Data Tape now available from the National Medical Care Utilization and Expenditure Survey

**Data from 17,000 respondents in
National Household Survey**

Information on:

- health
- access to and use of medical services
- associated charges and sources of payment
- health insurance coverage

Six fixed length files:

- | | |
|-----------------|--|
| • person | • condition file |
| • medical visit | • hospital stay |
| • dental visit | • prescribed medicine and other medical expenses |

Sponsored jointly by the National Center for Health Statistics and the Health Care Financing Administration.

For ordering information contact: National Technical Information Service,
5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650

Department of Health and Human Services

Otis R. Bowen, M.D., Secretary

Health Care Financing Administration

William L. Roper, M.D., Administrator

Office of Research and Demonstrations

Judith B. Willis, Director

Office of Research

Allen Dobson, Ph.D., Director

Division of Program Studies

Carl Josephson, Director

Surveys Studies Branch

Herbert A. Silverman, Ph.D., Chief

Public Health Service

Robert E. Windom, M.D., Assistant Secretary for Health

National Center for Health Statistics

Manning Feinleib, M.D., Dr.P.H., Director

Office of Interview and Examination Statistics Program

Peter L. Hurley, Acting Associate Director

Division of Health Interview Statistics

Owen T. Thornberry, Jr., Ph.D., Director

Utilization and Expenditure Statistics Branch

Robert A. Wright, Chief

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Health Care Financing Administration
Office of Research and Demonstrations
6325 Security Blvd.
Baltimore, MD 21207

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF HHS
HHS 396

FOURTH CLASS
BOOK RATE

CMS LIBRARY



3 8095 00011635 6